Optimising the role of auxiliary midwives to improve maternal and newborn health care in Myanmar: the potential for task shifting

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Abstract

Background: Over 800 women die from preventable causes related to pregnancy and childbirth every day, almost all of them in low and middle-income countries. Human resource constraints, both in terms of numbers and quality, are at the core of the problem. Task shifting is an approach designed to address the crisis in human resources for health.

In 2015, Myanmar reported a maternal mortality ratio of 282 per 100,000 live births with only 14 health care providers per 10,000 people, well below WHO recommendations of 23 health care providers. Currently in Myanmar, most babies are born without the assistance of a skilled birth attendant (e.g. a midwife), a situation believed to be a major contributor to high maternal and newborn mortality. The Ministry of Health and Sports trains and deploys a cadre of volunteers, called auxiliary midwives (AMWs) to provide maternal and newborn care in areas without skilled birth attendants. This thesis examines the role of AMWs and the feasibility and acceptability of task shifting selected interventions to AMWs to improve maternal and newborn health care in Myanmar.

Methods: This research involved two studies. The first was a mixed methods study conducted in Magwe Region, Myanmar between July, 2015 and June, 2016 involving a survey of 262 AMWs, complemented by 15 focus group discussions (FGDs) with midwives, AMWs, mothers and community members and 10 key informant interviews with health care providers at different levels within the health care system. This study aimed to understand the skills, knowledge and role of AMWs and the feasibility and acceptability of task shifting essential maternal interventions to AMWs. A second qualitative study, conducted in Magwe and Yangon Regions between June, 2015 and February, 2016, involved 11 FGDs with midwives, AMWs and mothers and 16 key informant interviews to explore the feasibility and acceptability of a new inhaled formulation of oxytocin currently under development for the prevention of postpartum haemorrhage (PPH), and potentially ideal for task shifting to AMWs in future.

Results: AMWs are trusted members of the community and provide preventive, promotive and childbirth care in hard-to-reach rural areas. However, in emergency situations involving curative care, AMWs are often required to exceed their assigned role. This pressure to

provide curative care in hard-to-reach rural villages where there is no skilled provider or support infrastructure, concerned and frustrated AMWs. Simultaneously, their knowledge of danger signs and skills in conducting safe delivery and newborn practices were found to be poor. AMWs often work alone in many hard-to-reach villages, and both the community and health care providers believe they should be better equipped with the skills needed to undertake basic emergency care.

The research also found that AMWs were capable of being utilised – with proper training and supervision – to deliver a package of maternal interventions through task shifting. The main interventions identified as feasible and acceptable for task shifting were oral vitamin supplementation during the antenatal care period, provision of misoprostol to prevent postpartum haemorrhage after childbirth, and the use of oral antibiotics for puerperal sepsis during the postpartum period. The study also endorsed the feasibility of introduction of an inhalable formulation of oxytocin (currently under development) for use by community-based birth care providers in areas lacking electricity and cold storage facilities.

Conclusion: AMWs are a large body of health volunteers who have been embedded within the community and health system in Myanmar for nearly four decades, and enjoy widespread community acceptance and trust. The role of this valuable health workforce can be optimised through task shifting of essential maternal interventions to provide effective care to mothers in rural and remote areas. This will require extensive skills-based training, ongoing supportive supervision and strong policy commitment, but if done well, AMWs could play an important role towards reducing maternal and neonatal mortality.

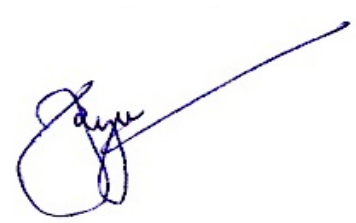
Declaration

Optimising the role of auxiliary midwives to improve maternal and newborn health care in Myanmar: the potential for task shifting

This is to certify that:

1. the thesis comprises only my original work towards the PhD except where indicated in the Preface,
2. due acknowledgement has been made in the text of all other material used,
3. the thesis is fewer than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices.

Signed:



Kyu Kyu Than, February, 2018

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Preface

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1. Chapter five of this thesis consists of a reprint of the published paper: “Determinants of knowledge of critical danger signs, safe childbirth and immediate newborn care practices among auxiliary midwives”, (1) published in *BMJ Open* under a Creative Commons licence. For this paper, I designed the study, collected the data, analysed the data, interpreted the results, wrote the first draft of the manuscript, and revised the manuscript following feedback from the co-authors and journal reviewers. In addition the published paper contains the following statement regarding author contribution:

   > KKT contributed to study design, data collection, and data analysis and led the first draft and finalisation of the manuscript. AM contributed to data analysis and development of the manuscript. MDP contributed to data analysis and development of the manuscript. JGB contributed to study design and development of the manuscript. SL contributed to study design, data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

2. Chapter six of this thesis consists of a reprint of the published paper: “The potential of task shifting selected maternal interventions to Auxiliary Midwives in Myanmar: a mixed-method study”,(2) published in *BMC Public Health* under a Creative Commons licence. For this paper, I designed the study, collected the data, analysed the data, interpreted the results, wrote the first draft of the manuscript, and revised the manuscript following feedback from the co-authors and journal reviewers. In addition the published paper contains the following statement regarding author contribution:

   > KKT contributed to study design, data collection, data analysis and led the first draft and finalisation of the manuscript. TGM and KST contributed to the data collection and development of the manuscript. KNT and TZL contributed to data collection, data analysis and development of the manuscript. JGB and SL contributed to study design and development of the manuscript. AM

contributed to data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

3. Chapter seven of this thesis consists of a reprint of the published paper: “Prevention of postpartum haemorrhage by community-based auxiliary midwives in hard-to-reach areas of Myanmar: a qualitative inquiry into acceptability and feasibility of task shifting”, (3) published in *BMC Pregnancy and Childbirth* under a Creative Commons licence. For this paper, I designed the study, collected the data, analysed the data, interpreted the results, wrote the first draft of the manuscript, and revised the manuscript following feedback from the co-authors and journal reviewers. In addition the published paper contains the following statement regarding author contribution:

   KKT contributed to study design, data collection, data analysis and led the first draft of the manuscript. YM contributed to data analysis and development of the manuscript. VO contributed to data collection, data analysis and development of the manuscript. TG contributed to study design and development of the manuscript. TZL contributed to data collection, data analysis and development of the manuscript. JGB contributed to study design and development of the manuscript. SL contributed to study design, data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

4. Professional editor, Dr Campbell Aitken, provided professional editing services in accordance with the Institute of Professional Editors’ *Guidelines for editing research theses*.

   My advisory committee approved the inclusion in this thesis of all published works listed above (i.e. chapters five, six and seven) and professional editing.

Publications arising from this thesis to date

1. Than KK, Morgan A, Pham MD, Beeson JG, Luchters S. Determinants of knowledge of critical danger signs, safe childbirth and immediate newborn care practices among auxiliary midwives: a cross sectional survey in Myanmar. BMJ Open. 2017;7(6).
2. Than KK, Tin KN, La T, Thant KS, Myint T, Beeson JG, et al. The potential of task shifting selected maternal interventions to auxiliary midwives in Myanmar: a mixed-method study. BMC Public Health. 2018;18(1):99.
3. Than KK, Mohamed Y, Oliver V, Myint T, La T, Beeson JG, et al. Prevention of postpartum haemorrhage by community-based auxiliary midwives in hard-to-reach areas of Myanmar: a qualitative inquiry into acceptability and feasibility of task shifting. BMC Pregnancy Childbirth. 2017;17(1):146.

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List of abbreviations

3MDG	Three Millennium Development Goal
AIDS	Acquired immunodeficiency syndrome
AMW	Auxiliary midwife
ARV	Antiretroviral drugs
BHS	Basic health service workers
CAPD	Compact-prefilled auto-disable device
CHW	Community health worker
COREQ	Consolidated criteria for reporting qualitative research
DOH	Department of Health
EmOC	Emergency obstetrics care
FGD	Focus group discussion
GAVI	Global Alliance on Vaccine and Immunization
GREAT	Guideline-driven, research priorities, evidence synthesis, application of evidence and transfer of knowledge
HIC	High-income country
HIV	Human immunodeficiency virus
IDI	Individual-depth interview
IOT	Inhaled oxytocin
JIMNCH	Joint Initiative for Maternal Newborn and Child Health
KII	Key informant interview
LHW	Lay health worker
LMIC	Low and middle-income country
MCH	Maternal and child health
MMR	Maternal mortality ratio
MOH	Ministry of Health
MOHS	Ministry of Health and Sports
MW	Midwife
NGO	Non-government organization
PPH	Postpartum haemorrhage
RHC	Rural health centre
SBA	Skilled birth attendant
TBA	Traditional birth attendant
TMO	Township medical officer
TTR	Treat, train and retain
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Chapter One: Introduction and overview of the thesis

In 2013, I travelled to a town in a hard-to-reach area of Myanmar to assess its suitability as a setting for a research project. While I was waiting to meet the township medical officer in front of the hospital, an old three-wheeled truck (known as a trawlergy) arrived. A woman covered in blood stepped down, carrying a newborn baby. Two men were struggling to unload a second woman, pale and moribund, in a blanket carrier. Hospital staff rushed the woman in the blanket into the emergency department amidst shouts and screams. A few minutes later, the woman who had been carrying the baby emerged and sat under a big tree in front of the hospital, crying heavily. I went over and held her in my arms, trying to comfort her. When she was able to speak, she told me that she was an auxiliary midwife (AMW) from a hilly village located nine hours' walk from the hospital; they were very lucky to get a ride in the trawlergy after walking for nearly three hours. As we talked, she continued sobbing, telling me how she was scared they would not reach the hospital in time to save the other woman and her baby. She described the woman's prolonged labour through the preceding night and how hard it was to persuade the family – and in fact, the whole village – that the mother needed specialty care. The baby was born on their way to hospital, as they walked through the bushes the bleeding began after the placenta was delivered. The AMW had considerable experience of childbirth, but no means to stop the woman's bleeding. Both the mother and the baby survived. Unfortunately, in my country, Myanmar, such events are common.

From that day on I determined to try my best to equip the AMWs working in remote areas of Myanmar with the skills and equipment needed to save women's lives. This was the

start of my personal journey towards my PhD, in which I sought to document the positions of AMWs in the communities they serve; how the community and health care providers understand and expect AMWs to undertake their roles and responsibilities; and what is needed to equip them with the competencies to save the lives of women and children in hard-to-reach areas of Myanmar.

1.1 Outline of the thesis

The thesis has eight chapters. Chapter one provides an introduction, background and overview of the thesis. It gives a brief description of maternal mortality, its causes and interventions to prevent it, the concept of task shifting, brief background to Myanmar and history of AMWs; it also presents the rationale for conducting this study. Chapter two contains a synthesis of the literature on task shifting, with emphasis on task shifting of essential maternal interventions using community-based health workers. It also provides a summary of research findings on AMWs and gaps in research on AMWs in Myanmar, and the objectives of the study. Chapter three describes the methods used in the study and ethical considerations. Chapters' four to seven present the integrated findings for each research objectives (in the form of three articles published in peer-reviewed journals and two still under review). Chapter eight, the discussion chapter, consists of an integrated discussion of the studies conducted to fulfil the objectives and the recommendations arising from the study findings. It includes health system factors to consider for implementation of maternal interventions in Myanmar. The chapter concludes with recommendations designed to assist health planners in implementation of maternal and child health (MCH) interventions.

1.2 Background

1.2.1 Maternal mortality

Maternal mortality remains a global health challenge in spite of considerable efforts to prevent it. An estimated 303,000 maternal deaths occurred in 2015, of which 99% were in low and middle-income countries (LMICs).(4) More than half of these deaths occurred in sub-Saharan Africa, and almost one third in South Asia. In 2015, the maternal mortality ratio (MMR, maternal deaths per 100,000 live births) across LMICs was 239, compared to just 12 in high-income countries (HICs).(4) This uneven distribution is even more pronounced if the poorest nations and rural and remote areas are compared to wealthy countries.

Myanmar is a South East Asian country with a population of 51.4 million (in 2014).(5) The MMR is 282 per 100,000 live births, much higher than in neighbouring countries such as Thailand (20) and Vietnam (54).(4, 5) There is also a wide difference between the rural and urban areas of the country, with MMRs of 310 and 193 respectively. There is also variation among the 15 states and regions into which the country is divided. The regions with highest MMRs are Chin State (357), Ayeyawady Region (354) and Magway Region (344) (see Figure 1).(5)

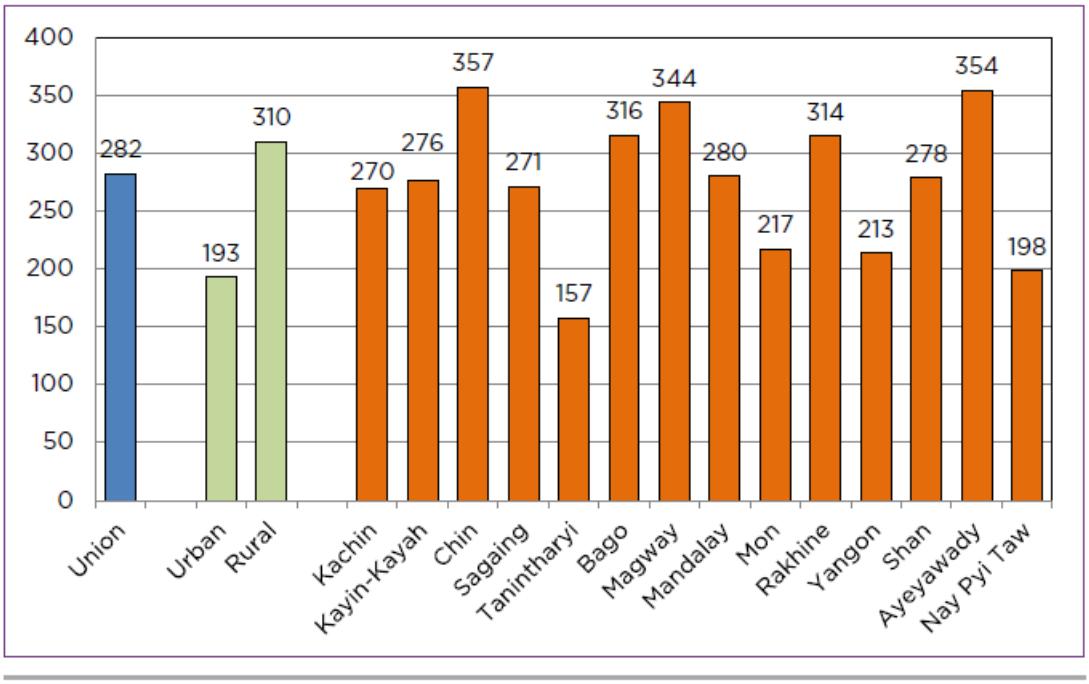
Definition and causes of maternal death

According to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), maternal death is

> the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to, or aggravated by, the pregnancy or its management but not from accidental or incidental causes.(6) (page 1238)

Figure 1: Maternal mortality ratios, union (national), urban and rural, and states and regions of Myanmar

Source: Department of Population (2016) (7) (page 20)



Most maternal deaths are due to complications during and following pregnancy and childbirth. The major complications, that account for nearly 75% of all maternal deaths, are severe bleeding (mostly bleeding after childbirth); infections (usually after childbirth); high blood pressure during pregnancy (pre-eclampsia and eclampsia); complications from delivery; and unsafe abortion (Table 1).(8) Other causes are diseases and conditions that worsen as a result of pregnancy such as malaria, Acquired Immune Deficiency Syndrome (AIDS) and anaemia.(4, 9)

Table 1: Global distribution of causes of maternal death							
	Abortion % (95%UI)	**Embolism % (95%UI)**	**Haemorrhage % (95%UI)**	**Hypertension % (95%UI)**	**Sepsis % (95%UI)**	**Other direct causes % (95%UI)**	**Indirect causes % (95%UI)**
World	7.9 (4.7-13.2)	3.2 (1.8-5.5)	27.1 (19.9-36.2)	14.0 (11.1-17.4)	10.7 (5.9-18.6)	9.6 (6.5-14.3)	27.5 (19.7-37.5)
Developed regions	7.5 (5.7-11.6)	13.8 (10.1-22)	16.3 (11.1-24.6)	12.9 (10-16.8)	4.7 (2.4-11.1)	20.0 (16.6-27.5)	24.7 (19.5-33.9)
Developing regions	7.9 (4.7-13.2)	3.1 (1.7-5.4)	27.1 (19.9-36.4)	14.0 (11.1-17.4)	10.7 (5.9-18.7)	10.7 (5.9-18.7)	27.5 (19.7-37.6)
South East Asia	7.4 (2.8-18.4)	12.1 (3.2-33.4)	29.9 (15.2-51.3)	14.5 (8.4-22.7)	5.5 (1.8-15.0)	13.8 (5.6-31.2)	16.8 (7.8-34.2)
Source: Say et al. (2014) (8) Estimated proportions of the cause of death (%) with 95% uncertainty interval (95%UI)							

Data relating to causes of maternal mortality in Myanmar are scarce. According to the Nationwide Cause Specific Mortality Survey conducted in 2004–2005, the leading direct causes of maternal mortality in Myanmar were postpartum haemorrhage (PPH) (31%), hypertensive disorders of pregnancy including eclampsia (17%) abortion (10%), obstructed labour (8%) and puerperal sepsis (7%). The remaining deaths were attributed to other direct causes (10%) and indirect causes (17%).(10)

Most maternal deaths are preventable if women receive timely quality care in the event of a complicated labour and delivery. The “3 delays” framework classifies the delays in receiving timely quality care into three distinct categories: delays in women and their families deciding to seek care, delays in reaching care in time, and delays in receiving adequate clinical care once at a health facility (11). The first delay is due to the mother and the community failing to recognise life-threatening danger signs and consequently delaying seeking care. Mothers and the community not only require knowledge and skill to recognise the danger signs but must understand the importance of a timely decision to seek care. Seeking care is often delayed by other factors such as cost and lack of trust in facilities. By the time the family and the lay health worker (community health workers and auxiliaries) recognise the problem, it is often too late. The second delay – reaching a health facility in time – is often due to difficulties in geographical access, and costs or lack of transportation. The third delay occurs in health facilities. In many resource-limited settings, even when a woman with complications arrives at a health facility in time, she may not receive adequate care or sufficient treatment due to human resources, technology and commodities being insufficient to handle complications needing emergency treatment including haemorrhage, infection and high blood pressure.(12-14) Miller et al. identified these delay as “too little,

too late", defined as "inadequate resources, below evidence-based standards, or care withheld or unavailable until too late to help", and mentioned that it is most prominent in LMICs.(15) (page 1)

Interventions to reduce maternal death

Most maternal deaths are preventable if the means to prevent and manage complications during and after pregnancy exist. Evidence-based interventions to reduce maternal morbidity and mortality are described in Table 2. However, many of the interventions require skilled providers with appropriate training in midwifery or obstetric care, and some interventions can only be provided in places where comprehensive emergency obstetric care (EmOC) services are available.(16) The Global Strategy for Women's, Children's and Adolescent's Health (2016–2030) states that receiving optimal care around the time of childbirth and during the neonatal period in facilities with preventable interventions could prevent 113,000 maternal deaths and 1.3 million newborn deaths by 2020.(9, 17, 18) However, despite the effectiveness of the interventions, Prata et al. argued that many LMICs still struggle to implement these interventions due to a shortage of human resources and financial and other constraints on service delivery, including lack of essential medicines and low political commitment.(19)

1.2.2 The role of human resources for health in reducing maternal mortality

Many strategies to reduce maternal mortality are centered on who assists women during childbirth and where the birth takes place. Koblinsky et al. identified four basic models of care for reducing maternal mortality.(20) In Model One, deliveries are conducted at home by a traditional birth attendant (TBA) or a community member who has basic

Table 2: Evidence-based interventions to reduce maternal morbidity and mortality		
Major causes of maternal mortality	**Type of intervention**	**Main effects and source of evidence provided**
Postpartum haemorrhage (PPH)	Oxytocin	Halves PPH risk when used routinely for prevention and recommended for both prevention and treatment (Westhoff et al. 2013, WHO 2012)
	Misoprostol	Reduces PPH risk and the need for blood transfusion and recommended for PPH prevention if oxytocin is not available (Tuncalp et al. 2014; WHO 2012)
Pre-eclampsia and eclampsia	Calcium supplementation	Halves the pre-eclampsia risk in all women; risk reduction is greatest in high-risk women and those with low dietary calcium intake (Hofmeyr et al. 2014; WHO 2013)
	Aspirin supplementation	Reduces the risk of pre-eclampsia in high-risk women (Duley et al. 2007, WHO 2011b)
	Magnesium sulphate	Reduces the risk of first seizure in women with pre-eclampsia and recurrent seizures in eclampsia, with a trend to reduced maternal mortality (Altman et al. 2002; Duley, Gülmezoglu et al. 2010; WHO 2011b)
Sepsis	Prophylactic antibiotics at cesarean section	Reduces risk of wound infection, endometritis and serious maternal infectious morbidity (Smaill & Grivell 2014)
Source: Adapted from Gülmezoglu et al. (2016) (21), page 117		

training in childbirth care. In Model Two, deliveries are conducted at home with a skilled birth attendant. Skilled birth attendants are formal health workers (doctors, nurses or midwives) who possess the skills to manage most complications of delivery.(22) Model Three deliveries are conducted by skilled birth attendants in a facility with basic EmOC, and in Model Four, every woman gives birth in a comprehensive EmOC facility with a skilled birth attendant. Basic EmOC includes interventions such as administration of intravenous anticonvulsant, antibiotics, uterotonics, removal of retained product of placenta, assisted delivery and manual removal of placenta; comprehensive EmOC includes all basic EmOC services with addition of blood transfusion and operative surgery.(23)

Model One is in use in many LMICs; evidence of a resulting reduction in the MMR is scarce.(24, 25) Countries which have transitioned to Model Two, Three or Four demonstrate reductions in their MMRs to below 50 or less.(20, 26) Malaysia's success story of training community midwives and providing them with effective referral pathways to EmOC facilities resulted in a reduction of the national MMR from 200 in 1967 to below 50 in 1986. A well-functioning health system that supported community-based midwives was a critical factor.(26) Model four settings typically occur in HICs, including the United Kingdom and United States of America, which have reported MMRs of 9 and 12 respectively since the 1990s. (20, 26) The attendance of skilled birth attendant at delivery remains the primary human resource strategy to reduce MMR; 80% coverage of skilled attendance at delivery was predicted to reduce the global MMR to below two third by 2015.(22, 27)

However, in 2016 one in five births (22%) were still completed without the assistance of a skilled birth attendant, representing almost 31 million unattended births.(28) According to the 2006 World Health report, achieving 80% coverage for skilled attendance during deliveries requires 22.8 health care providers with midwifery skills (doctors, nurses and midwives) per 10,000 population.(29) In 2014, according to the WHO, 57 countries were facing chronic challenges to achieving adequate human resources for health, most in Africa and Asia. Within each country there is also asymmetry in the distribution of health professionals, with lower numbers of professionals in rural areas (with the highest need) than in urban areas.(30) Coverage of skilled birth attendance across regions differs from 99% in Eastern Europe, Central Asia and Western Europe to 52% in West and Central Africa.(28)

Myanmar is among the 57 countries experiencing a critical shortage in human resources for health, which is causing inadequate provision of essential life-saving interventions such as childhood immunisation, safe pregnancy and delivery services for mothers, and access to prevention and treatment for HIV/AIDS, malaria and tuberculosis. Myanmar has only 14 health care providers per 10,000 population, far below the WHO recommended coverage for skilled birth attendant alone.(31) According to the recent Myanmar Demographic and Health Survey, Myanmar's rate of skilled birth attendance is 60%.(32) There are also significant differences in skill birth attendance between the rural and urban areas and between the various geographical regions. In the hilly Chin state the skilled birth attendant coverage is estimated at only 39%, compared to 72% in the Yangon plain region.(32) Births that are not attended by skilled birth attendants are usually assisted by an AMW or a traditional birth attendant in the rural hilly areas, and comprise around 50% of all home births.(33, 34)

At the rural community level in Myanmar, three main cadres of community-based birth attendants serve mothers and children: Midwives, traditional birth attendants and AMWs. Midwives are skill birth attendants stationed at rural sub-centres and are the frontline MCH workers within the government health care system. Many reports highlight that midwives were often unavailable in rural and remote areas of the country due to geographical, social and economic factors.(33, 34) In 2015 there were only 13,529 midwives present in 64,134 villages across the country.(35) Also, midwives are overburdened with tasks other than providing antenatal care, safe delivery and post-delivery care services. The primary health care burden of midwives is considered a major reason for midwives being unable to perform their main task of maternal and child health care in the community.(36)

To assist midwives with their responsibilities and to serve the community in areas lacking midwives and replace the traditional birth attendants, AMWs were introduced into Myanmar's health system in 1978.(37) AMWs must be female volunteers with secondary education. They receive six months training (three months of theoretical training and three months of practical training) from Township Health Departments under the Ministry of Health and Sports (MOHS).(38) According to the Department of Public Health, there were over 30,000 AMWs in Myanmar at the end of 2015, more than twice the number of Midwives.(35) The main tasks of the AMWs are to identify pregnant women, screen for danger signs and facilitate early referral, provide health education and counselling on nutrition and birth preparedness, and perform normal childbirth under the supervision of the Midwives.(39) In many rural and remote areas of the country, AMWs are providing homebirths to women with limited access to health facilities and Midwives.(40)

Evidence shows that women in many LMICs, including Myanmar, are giving birth at home without the assistance of a skilled birth attendant.(15, 21, 32) Prata et al. argued that although training, deploying skilled birth attendants and upgrading EmOC facilities are important long-term strategies, we must not forget the immediate safe delivery needs of women in many LMICs who are giving birth at home without the assistance of skilled birth attendants. Strategies to rapidly reduce the MMR in these countries include training community-based birth attendants in primary and secondary prevention measures such as misoprostol administration, family planning and postpartum care, which may benefit the poorest and most vulnerable mothers.(41)

Myanmar's health system faces formidable human resource constraints, including major difficulty in recruiting and retaining health workers in rural and remote areas.(42)

Recent efforts to train and deploy midwives and improve EmOC have been slow due to weak health system infrastructure and financial constraints. In recognition of the minimal progress made so far, there is now a focus on understanding how to best use existing community-based health resources and better use AMWs who are already providing home births in hard-to-reach rural areas through task shifting.

1.2.3 Task shifting in health

One approach to solving the challenge of unattended births is through task shifting, which involves the provision of essential interventions to prevent major causes of maternal deaths by community-based maternal health workers.(43) According to the World Health Organization (WHO), **"**task shifting is a process whereby specific tasks are moved, where appropriate, to health workers with shorter training and fewer qualifications".(44) (page 7) In a recent article, Perry et al, stated that if services are not extended to those in highest need, even the best interventions for maternal and newborn health will have little impact on maternal and childhood mortality.(45) Using task shifting to improve the skills of community-based health workers who are in close contact with mothers has been considered in many LMICs.(15, 46-48)

In rural areas of Myanmar, where home births are common without skilled birth attendants, assistance and access to health facilities is poor, AMWs are an obvious target for task shifting. Evidence generated globally has shown that community health workers (such as AMWs in Myanmar) can provide essential medication such as misoprostol to prevent PPH and other preventive and promotive measures to reduce maternal morbidity and mortality.(49-51) However, task shifting requires careful planning and understanding of the context in which it can take place. The context includes to whom the task is shifted, health

workers' roles and responsibilities, relationship and positioning of the health worker within the health system, and which task or tasks are to be shifted. Critical considerations also include community and health system factors that may affect the implementation of task shifting, such as supervision and training, funding resources and implementation policy.(43, 50, 52, 53)

1.3 Myanmar, its health system, and auxiliary midwives

1.3.1 Geography, population and political history

Geography

The Republic of the Union of Myanmar, also known as Burma, is one of the largest countries in mainland South East Asia. It is bordered by the Kingdom of Thailand and the Lao People's Democratic Republic on the east and north-east, by the People's Republic of China on the north and north-east, by the Republic of India to the north-west and by the People's Republic of Bangladesh to the west. Myanmar covers a land area of 653,508 square kilometres.(54)

The main physical features of the country are the delta region and the central plains, which are surrounded by mountains. It falls into three well-marked natural divisions: the western hills, the central belt and the Shan plateau on the east. Three parallel chains of mountain ranges from north to south divide the country into three river systems, the Thanlwin, Ayeyarwady and Sittaung. (55) In the southern plains and swampy marshlands numerous rivers and tributaries of these rivers crisscross the land. Myanmar's mountains create regular rainfall for the rice farmers and the rainforest, and protect much of the country from cyclones. The country is divided administratively into Nay Pyi Taw Council Territory and 14 states and regions. These are subdivided into 74 districts, 330 townships,

398 towns, 3065 wards, 13,619 village tracts and 64,134 villages.(55) Myanmar has abundant natural resources including fertile land, water, forests, coal, mineral and marine resources, and natural gas and petroleum.

Population

According to the most recent census (2014), the population of Myanmar is just over 51 million with an annual population growth rate of 0.89%. Population density is 76 persons per square kilometre, and there are 93 males for every 100 females. Seventy per cent of the population resides in rural areas.(56) Gross domestic product (GDP) per capita is $1,203, and Myanmar has a human development index of 0.536, positioning it at 148 out of 188 countries.(57)

Myanmar has over 135 ethnic groups but eight major groups. Bamar constitute the majority (60%) followed by Shan (8.5%), Kayin (6.2%), Rakhine (4.5%), Mon (2.4%), Chin (2.2%), Kachin (1.4%) and Kayah (0.4%). Over 100 languages and dialects are spoken across the country, with Myanmar the official language. About 90% of the population is Buddhist, with Christians and Muslims constituting about 5% and 4% respectively. (58)

Political history

Myanmar was a British colonial possession for more than a century until it was given independence in 1948. Parliamentary democracy lasted until 1962, when military rule began under General Nay Win, known as the Socialist period. In 1988, severe economic problems provoked nationwide demonstrations; on 18 September the military staged a coup and the country came under a new military dictatorship, with the constitution suspended.(58)

In May 2008 a new constitution was ratified in a referendum with 92.4% support.(58) The first national elections in 20 years were held on 7 November 2010. The

Union Solidarity and Development Party, headed by President U Thein Sein, came to power in March 2011. A series of reforms occurred, including the release of National League for Democracy leader Daw Aung San Suu Kyi and her participation in high-level talks to discuss the future of Myanmar, amnesty for most political prisoners, relaxation of media censorship, establishment of the National Human Rights Commission, and efforts toward peace with ethnic rebel groups. In April 2012, Daw Aung San Suu Kyi's party agreed to compete in by-elections, held to fill vacancies between general elections; the National League for Democracy dominated, winning 44 of 46 seats.(58)

The November 2015 elections were the first nationwide, multiparty elections since the parliament first convened in 2010 and were widely considered Myanmar's most free and fair polls in 25 years.(59) This election created historic political reform in which the National League for Democracy, Myanmar's long-time opposition party, returned to the formal political process with a landslide electoral victory that gave it a majority in both chambers of parliament. In March 2016, the new parliament elected Mr Htin Kyaw as an official civilian President of Myanmar.(60)

This is an exciting time for Myanmar. The new government faces a challenge to achieve a successful political transition that can ensure economic stability and sustained improvement in the lives of the masses. It is also a challenge for the government to enact successful economic reform while maintaining political stability and a continued shift away from Myanmar's authoritarian past.

1.3.2 The health system

The health system in Myanmar has been characterised as fragile and weak.(42, 61, 62) During over 50 years of military rule, information was controlled stringently and peer-

reviewed health literature was scarce. With a civilian government since 2015, the country has new and exciting opportunities in health. Many valuable databases have been developed, including the census in 2014 – the first since 1983. The Demographic and Health Survey 2016,(32) the Myanmar National Health Plan (2017-2021),(61) and the Myanmar Health in Transition 2014(58) are a few of the welcome developments in health information.

Political commitment towards health has also been observed, with government spending on health increasing from 1.8% (2005) to 3.4% of its GDP (2015).(61) There is also indication of strong commitment to health system reform, including public health priorities and universal health coverage as an ultimate aim.(61-63) Official development assistance for health has also increased. Multi-donor funding – such as Three Millennium Development Goal (3MDG) funds targeting maternal and child health, Global Fund support for work on HIV/AIDs, TB and malaria, and Global Alliance for Vaccines (GAVI) support for immunisation – holds great promise for health improvement in Myanmar.(42)

Nevertheless, with health being neglected for many decades, change will be slow. There is a huge gap in human resources, especially at the grassroots in rural areas, where 70% of Myanmar's population lives.(31, 64, 65) Basic health services are also scarce in hard-to-reach rural health centres; insufficient human resources, lack of essential medicines and supplies, compounded by transportation difficulties and weak supervision, all contribute to the inequity in access to quality health care.(42) Myanmar has only 14 skilled health care workers per 10,000 population, far below the WHO average of 23.(66)

There are seven main departments within the Ministry of Health: Public Health, Medical Services, Human Resources for Health, Medical Research, Food and Drugs Administration, Traditional Medicine, and Sports and Physical Education. For maternal and

child health, there are two separate divisions within the Department of Public Health: Maternal and Reproductive Health and Child Health.(61)

Health services for the public sector are structured in three levels: central, state/regional and township. The Central Health Department is mainly responsible for policy and decision-making and situated in the capital city Nay Pyi Daw. Seven state and seven regional health departments are mainly responsible for providing leadership and guidance in execution of health activities at the township levels. Implementation of health activities mainly occurs at the township level, which is the basic functional level of the health system.

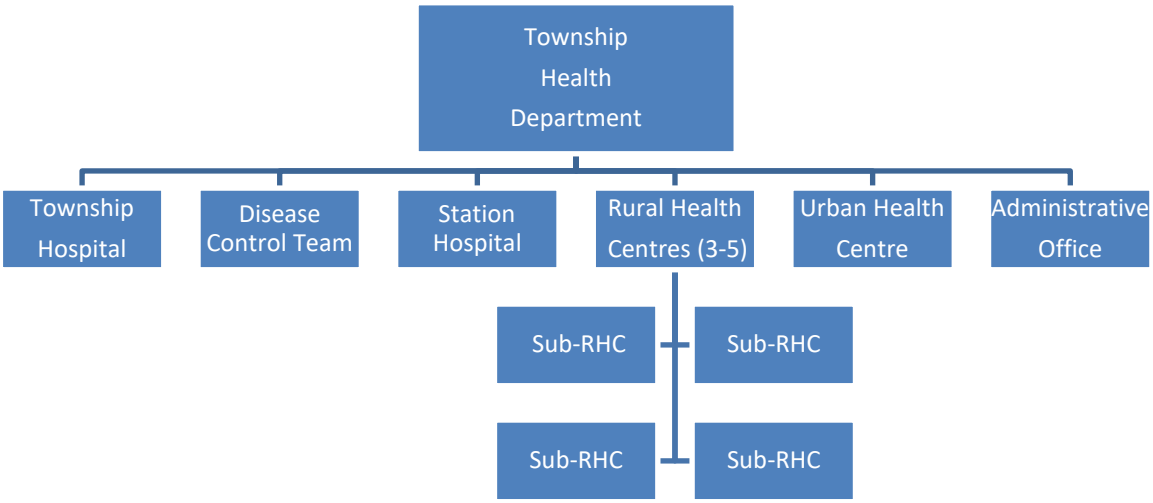
The township health system

Township health departments cover populations of between 100,000 and 300,000.(58) Township medical officers (TMOs) are responsible for both administrations and operations at township level hospitals and health centres. Within each township health department, rural health centres (RHCs) are the core health services for rural people. The core function of the RHCs is primary health care. Each township has four to seven RHCs and each RHC has four sub-RHCs (the most basic frontline health facility). RHCs cover an average of 26,633 people, sub-centres covers an average of 6658 people, and a midwife has an average of 4,144 people under their care.(67) At the sub-RHC level, midwives are the main workers serving the health of rural communities.(68)

Maternal and child health

The Myanmar government has made maternal and child health care a priority.(61) The MOHS is committed to promotion of overall reproductive health and ensuring that every effort is made to reduce maternal mortality and improve the quality and accessibility of reproductive health services.

Figure 2: The township health system in Myanmar



As described, MMR is high in Myanmar with wide variation in urban and rural areas and in different regions of the country. Although institutional delivery is strongly promoted, many women in Myanmar still prefer to give birth at home. In 2015, 63% of all deliveries occurred at home, and 72% in rural areas.(32) Skilled birth attendance coverage in these rural areas is far less compared to the urban areas. Majority (62%) of the maternal deaths occurred at home. Only 38% of women with complications during pregnancy and childbirth are referred to a hospital and only 24% reached to hospital for timely care. The other 14% died on their way to hospital both due to primary delay in deciding to seek care, delay in referral and secondary delay of transportation difficulty and cost.(68)

Main health care providers involved in childbirth at township level is described in table (3). Midwives are assigned in RHCs and sub-RHCs to provide care to women and children. In theory, a Midwife opens her clinic for two days and goes for field visit three days

per week to provide antenatal care, postnatal care and conducts childbirth and immunization. She also provides health education on safe motherhood, family planning, breast feeding and nutrition. Direct access to MCH care by Midwife reaches only 10 percent of the rural population and the rest are regarded as underserved areas. To increase the MCH coverage in these underserved rural areas, a volunteer village health worker named AMW was created.(68) Midwife also supervise and train AMWs.(69) The history of the AMW program and AMW selection, training, supervision and remuneration will be discussed in detail in the following section.

1.3.3 Auxiliary midwives in Myanmar

The history of the national AMW program development will be discussed in line with major changes in the health system: the primary health care period (1978–1988); the recovery period (1990–2005); the stabilising period (2005–2010); the post-Nargis period (2010–2013) and 2013 to present.

Primary health care period (1978–1988)

Between 1978 and 1988, government and donors prioritised development of the primary health care system and establishment of the RHCs.(42) Since the inception of the primary health care movement, AMWs have provided communities in remote and rural areas with MCH services. A major aim of the AMW program was to phase out the traditional birth attendants because they were regarded as in proficient.(70) Starting in 1978, local women aged between 18 and 40 years, who could read and write and had approval from the local authority (i.e. a village council member), were from villages lacking basic health staff (health assistants, a lady health visitor or a MW), and committed to working for at least four years as a volunteer after attending the training, were recruited as AMWs. Their

motives were largely altruistic. AMW trainings involved three months of theory and three months of practical training at district hospitals. Funding for AMW training came mainly from the Government.

Table 3: Health care workers involved in childbirth at township level			
Health care worker	**Scope of work**	**Level of facility/home**	**Education**
Township Medical Officer (TMO)	Antenatal care (ANC), birth – vaginal & caesarean section , postnatal care (PNC), family planning, all basic health care services: prevention, treatment and referral	Township hospital	Pre-service education = 6 years: MBBS
Station Medical Officer	ANC, Birth – vaginal & caesarean section , PNC, family planning, all basic health care services: prevention, treatment and referral	Station hospital	Pre-service education= 6 years: MBBS
Nurse	Health education, immunisations, primary health care of women, men, children, ANC, vaginal delivery, PNC, family planning	State/Regional, Township and Station hospital	Pre-service education= 3 years diploma, 4 years bachelor
Public Health Supervisor	Lead of RHC, health education, immunisations, primary medical health care for women, men & children, environmental sanitation, prevention & management of communicable diseases, data management, supervision of LHV, MW & PHSs	Rural Health Centre (village)	Two types: Basic Community Health Assistant Pre-service education = 4 years Condense Health Assistant Pre service education = 2 years and 3 months
Lady Health Visitor	Health Education, Immunization, all MCH activities and supervision of Midwives	Station Health Unit/Rural Health Centre	Same as MWs with additional 9 months training to become a LHV
Midwife (MW)	Health education, immunizations, primary health care of women, men, children, ANC, vaginal delivery, postnatal care, family planning, nutrition promotion, environmental sanitation, prevention & control of communicable diseases, supervision & monitoring of village health workers (VHWs) especially AMWs	Rural health centre and sub-RHCs (village)	Pre service education=24 months
Auxiliary Midwife (AMW)	ANC, vaginal delivery, postnatal care, health education and referral	Home (village)	Pre service education=6 months (post-secondary school)
Traditional Birth Attendant	Normal delivery, recognise problems and appropriate referral	Home (village)	Pre service education (not formally required)
Source: Adapted from USAID/MCHIP Survive and Thrive; Maternal Newborn Health Situational Analysis in Burma. (2013),(71) page 5			

AMWs in hard-to-reach areas were intended to resemble Midwives as closely as possible, with the same uniform (white blouse and a red sarong), the only difference being the absence of the Midwifery cap. This was to build the community's trust in them as health care providers with skills in midwifery. A total of 10,519 AMWs were trained in the 314 townships of Myanmar in 1986.(37, 38) During the primary health care period, research related to AMWs was mainly done to monitor and evaluate the program. A project report in 1985 stated that the AMW program was performing well; lack of regular replenishment of supplies and supervision was mentioned as the most important deficiency.(72) Chauls' study highlighted an early understanding of the importance of formally engaging with community health volunteers as a step towards primary health care in Myanmar. It stated that strong political commitment towards the program, together with Buddhism and other aspects of Burmese culture, effective supervision and adequate supply of drugs and stock deliveries, were major reasons for the success of the AMW and Community Health Worker (CHW) program.(73)

Recovery period (1990–2005)

Following the political upheaval of the late 1980s, Myanmar went into a relatively stable social and political period. During this period, United Nations Children's Fund (UNICEF) gave training support to the AMWs (referring to them as auxiliary nurse midwives) under the Border Areas Primary Health Care and Development Project (1996–2000). The main intention of the program in this period was to train AMWs to improve immunisation uptake in border areas and subsequently in ANC, delivery, childhood diarrhoea and acute respiratory infection control activities. The training duration was four months.

Subsequently, the United Nations Development Programme (UNDP) gave assistance to the training of AMWs in some townships using the same selection criteria.

Stabilizing period (2005–2010)

Political stability allowed health system policy structures to emerge. However during this period, economic sanctions and minimal official development assistance were major problems for the health system, with major deficiencies in human resources – especially in rural areas. Government invested more in the hospital sector rather than rural health development. Lack of motivation and poor remuneration created problems in maintaining a rural health workforce.(42) UN agencies such as the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA) and the WHO were the main funding agencies during these periods.(42) Under the Maternal Newborn Health Care project, the Child Health Division trained AMWs in maternal and newborn health in collaboration with UNICEF, and a specific Maternal and Newborn Health Care training manual was introduced in the project townships. At the same time, UNFPA townships were conducting AMW training with a different manual produced by the Maternal Health Division. During these periods, lack of cohesion within the Ministry was apparent as divisions conducted their own projects in townships. Lack of coordination and departmental responsibility for the conduct of the AMW training made the AMWs' deployment and training project-based and short-term – less than ideal conditions for programme effectiveness and sustainability.

In 2005, UNICEF and the Department of Health conducted an evaluation of the AMW program for the UNICEF funded townships. It showed that AMWs had low levels of knowledge and skills related to the key MCH services. The study highlighted the need to define clear roles and responsibilities for AMWs, update the training manual, conduct

regular refresher training, and ensure that supplies and equipment were replenished.(74) However, the findings were never utilised to improve the AMW program, as there were competing interests with funding priorities towards disease control programs such as HIV/AIDS, tuberculosis and malaria.(75)

Post-Nargis period (2010–2013)

Myanmar's aid budget increased dramatically in 2010 in response to Cyclone Nargis, and funding for AMWs benefited accordingly. In Nargis-affected areas, under the Joint Initiative for Maternal Newborn and Child Health (JIMNCH), new training and refreshers for AMWs occurred along with referral support in collaboration with international non-government organisations (NGOs) (Merlin, Save the Children, Relief International and the International Organization for Migration).(34) Under the program, individual NGOs collaborated with the Department of Public Health to recruit, train and supervise AMWs.(34) During the same period, with Global Alliance on Vaccine and Immunization (GAVI) funding, the Health Systems Strengthening (HSS) programme provided support to AMWs in 21 townships.(40) The GAVI HSS supported recruitment and training of new AMWs, as well as refresher courses for AMWs in the same townships. Under the GAVI program, each township had annual quota of 20 recruits to attend the six-month training to be an AMW, and 50 recruits to attend a refresher course.(40) Local funding mechanisms in regions such as Magwe and Sagaing also supported training of AMWs from 2012. During this period, an assessment of the training package of AMWs showed that the knowledge level of AMWs was low; good performance was related to higher education, being a native of the village, younger age, higher knowledge score and the existence of supervision.(76) However the findings were not comparable to the 2005 program evaluation. The study also

highlighted those villages lacking MWs needed AMWs and that the selection criteria for AMWs should be revisited. (76) At the end of 2012, there were 19,808 AMWs in Myanmar.(58)

2013 to present

A paradigm shift in the AMW program occurred due to substantial political action in 2013; the Vice President ordered that the Maternal and Reproductive Health Division under the Department of Public Health map and organise all functioning AMWs in townships. An AMW micro-plan (2013–2016) was established, with the aim of training 30,000 new AMWs within a four-year period. In the micro-plan, the aim was to have one AMW per village (lacking a health facility) across the country by the end of 2016.(39) Under the leadership of the Maternal and Reproductive Health Division, project funding was established, with the main sources being the 3MDG and GAVI programs. With the 'one AMW in every village' policy in 2016 there were 30,799 AMWs in Myanmar.(35, 39)

Selection, training, supervision and incentives of AMWs

The following section describes the history of the selection process, training, supervision, recognition and incentives for AMWs from their inception to the present.

Selection criteria

The recruitment and selection of AMWs has been haphazard, lacking standardisation and central control, exacerbated by much selection and recruitment occurring through donor-funded projects. Table 4 summarises the history of the recruitment criteria for AMWs. It shows that the education and age of recruitment criteria have altered; this may be an indication of difficulty in recruitment, as many remote or rural communities have few young women with secondary education.

Table 4: History of auxiliary midwife recruitment criteria (1978–2013)				
Recruitment criterion	**Department of Health (1978)**	**UNICEF (Border Development Project) (1996)**	**Department of Health (2008)**	**Department of Health (2013)**
Age	18–40 years	16–25 years	Age < 30 years	Age < 30 years
Education	Can read and write	Completed at least primary school	At least 8th standard pass in education (middle school)	At least 8th standard pass in education (middle school)
Community of origin	A native	A native	A native	A native
Other certification needed	An approval letter from a local authority (i.e. village council members)	Appropriate certificate by the respective local authority police department and township health department	Recommendation from the local Midwife and/or village headman	Recommendation from the local Midwife and village authority
Commitment	Work for at least four years as a volunteer	Enthusiastic and interested in social, community and health activities	Willing to stay and serve in the village after the training	Willing to serve in the village for at least three years
Must not have a Midwife in the same village	From a village lacking basic health staff (Health Assistant, Lady Health Visitor or Midwife)		From a village where there is no health facility or basic health staff	From a village where there is no health facility or basic health staff
Other criteria			In good health and interested in health and social work	In good health and interested in health and social work

Training

As noted earlier, AMWs' training consists of three months theoretical training and three months practical training.(39, 72) Although there have been various training manual for AMWs, I could find no evidence of a trainer's manual. Departmental documents show that training was and is mainly conducted by township health departments in conjunction with district-level training teams. Theory training is conducted at the township hospitals and practical training is conducted at township and station hospitals and also at RHCs. There was

no evidence of central training for the AMW trainers. Various agencies developed at least seven AMW training manuals[1] between 1978 and 2015 (Table 5).

Table 5: AMW training manuals in Myanmar language	
Source of training manual[1]	**Year**
Department of Health	1978
UNICEF	1995
UNDP	2000
Department of Health/UNICEF	2006
Department of Health/UNFPA/WHO	2008
Department of Health	2013
Department of Health	2015

Supervision

Midwives are mainly responsible for direct supervision of the AMWs and the TMO is held accountable for their activities and performance.(72) Research findings have highlighted that supervision of AMWs was weak,(40, 77) and there was no specific department at the central level for monitoring of AMWs' activities. Also, the department held accountable for the AMW program changed repeatedly. During the early inception, the AMW program was under Department of Health (Primary Health Care program). During the 1990s, it was under the voluntary health worker program of the Planning Section of the Department of Health. However, from 2013 to the present, the AMW program has been directly under the Maternal and Reproductive Health Division of the Department of Public Health.

[1] I used my personal contacts to locate these manuals; it is possible that more exist.

Supervision of AMWs is one of the tasks assigned to Midwives, but no specific funding for supervision and lack of support makes supervision difficult. Some of the programs under the JIMNCH, GAVI and 3MDGs have incorporated supervision incentives, and it has been shown that more regular supervision visits from Midwives and TMOs took place in those project townships.(34) There is also no specific supervision checklist to be used by supervisors at present.

Recognition and incentives

As AMWs are volunteers, they receive no financial incentive from the government. However, township health departments give AMWs a certificate of completion and an AMW kit box after the training.(78) Document reviews stated that other non-financial incentives, such as referral support in the Cyclone Nargis-affected areas under the JIMNCH program, were useful forms of recognition.(34) In particular, until 2016, every two years the Ministry of Health selected high-performing CHWs and AMWs and rewarded them with a week's holiday and a dinner hosted by the Minister.(58) This ceremony has not been observed since the new government came to office.

1.4 Rationale for the study

The main focus of the research described in this PhD thesis was to understand the current roles and responsibilities of AMWs both within the community and the wider health system, and how best to leverage these roles to provide more comprehensive maternal health care to women in rural areas of Myanmar. The intention of the study was to produce data that would inform policy developments in Myanmar to improve essential maternal health services for hard-to-reach and remote populations. In the next chapter I discuss the literature on task shifting related to community-based health workers and gaps in the research carried out on AMWs in Myanmar to date.

Chapter Two: Literature review

Chapter two presents a review of the published literature on task shifting in MCH and AMWs in Myanmar. It describes types of task shifting, the history of task shifting, the process of task shifting to lay health workers (community health workers and auxiliaries health workers) in maternal and newborn health and research on AMWs in Myanmar.

2.1 Types of task shifting

Task shifting has been used as a response to the global shortage of health workers, and is broadly defined as the process of shifting tasks from one health care provider to another.[2] It is also a way to facilitate increased access to essential interventions by providing available cadres with short periods of additional training and allowing them to take on some specific tasks.(43) Various terminologies have been used in the literature to refer to the task shifting concept, including “task sharing”, “task delegation”, “substitute health worker” and “skills substitution”.(44, 79)

Task shifting has been carried out in varying forms ranging from shifting of tasks from professional physicians and specialists to doctors with lesser skills,(80, 81) from doctors to nurses,(82) nurses/midwives to auxiliaries and community health worker/lay health workers (83-85) and in some circumstances to community members and patients themselves.(86, 87) These four main types of task shifting are described further in Table 6. This thesis mainly focuses on task shifting III: Task shifting from nurses/midwives to auxiliaries and community health workers/lay health workers. According to the WHO (2012), lay health workers (LHWs) include “any health worker who performs functions related to

[2] The WHO’s comprehensive definition of task shifting was provided in chapter one.

health-care delivery; was trained in some way in the context of the intervention; but has received no formal professional or paraprofessional certificate or tertiary education degree" (page vii). It includes "community health workers (CHWs), village health worker, treatment supporter, promoters etc. Community-based skilled birth attendants (Bangladesh), Dai (Pakistan), Bidan kampong (Malaysia), skilled birth attendants (Bangladesh), traditional midwives (Guatemala) and Dayas (Egypt)".(43) (page vii) From this point onwards, the terms LHW and CHW will be used interchangeably.

Table 6: Types of task shifting

	Definitions
Task shifting I	The extension of the scope of practice of non-physician clinicians in order to enable them to assume some tasks previously undertaken by more senior cadres (e.g. professional physicians and specialists)
Task shifting II	The extension of the scope of practice of nurses and midwives in order to enable them to assume some tasks previously undertaken by senior cadres (e.g. non-physician clinicians and medical doctors)
Task shifting III	The extension of the scope of practice of community health workers, lay health personnel and auxiliary health workers in order to enable them to assume some tasks previously undertaken by senior cadres (e.g. nurses and midwives, non-physician clinicians and medical doctors)
Task shifting IV	Community members, trained in self-management, assume some tasks related to their own care that would previously have been undertaken by health workers
Adapted from WHO (2008) (44) (page 81)	

2.2 History of task shifting in health

As noted earlier, task shifting has been identified as one solution to the shortage of health workers.(43, 52, 79) However, task shifting in health is not a new concept; it is closely aligned with the ideology underlying the 1970s introduction of CHWs, who were trained and deployed to remedy the lack of skilled primary health care workers in rural and remote areas.(48, 83, 88) The Chinese barefoot doctors of the 1950s are an early example of this: local farmers were provided with brief training that enabled them to provide basic health care to the rural poor.(54) Using different terms such as substitution, skill mixing, task sharing and task shifting, many countries adopted the concept to address either primary health care needs for remote and hard-to-reach places or as a response to crisis situations.(81, 89, 90) In 2008 the Director-General of the WHO, Dr Margaret Chan, described the task shifting concept as "the vanguard for the renaissance of primary health care".(44) (page 1)

The 2004 Joint Learning Initiative and the WHO's Integrated Management of Adult and Adolescent Health Illness program identified task shifting as a specific strategy for dealing with the challenges of human resourcing for health. The leaders of these programs drew attention to the global shortage of human resources, especially in the world's poorest countries, and called for shared responses to solve the problem.(91) In 2006, the WHO's annual World Health Report "Working together for health" highlighted the need for strengthening and investing in the human health workforce.(92) In 2008 the first conference on task shifting was held in Ethiopia. The resulting Addis Ababa Declaration contains key elements of task shifting to solve the human resource constraints that are impeding progress towards the Millennium Development Goals to reduce child mortality (Goal 4), to

improve maternal health (Goal 5), to combat HIV and AIDS, malaria and other diseases (Goal 6) and towards achieving universal access to HIV and AIDS services by 2010.(44) Many organisations support the joint WHO/UNAIDS/PEPFER[3] guidelines for the implementation of task shifting, formalised in 2008.(44) They include the treat, train and retain (TTR) strategy, which became a guide for African countries in combating the HIV/AIDS epidemic, as it deals comprehensively with preventing, treating and training health workers for universal access to HIV and AIDS services.(44) Task shifting was the WHO's policy for the training component of the TTR. The strategy was to delegate health care workers with fewer skills to specific tasks requiring shorter duration of training. The task shifting guideline recommended shifting responsibility for the prescription of antiretroviral drugs (ARVs) from physicians to nurses; the aim was to increase access to ARV treatment to rural and remote areas where doctors are not present. In addition, some of the nurses' original workload, like counselling and education, could be shifted to lesser-skilled CHWs, and HIV-positive patients are encouraged to become lay counsellors.(85) The WHO document emphasises that task shifting should not be regarded as second-rate medical care but instead used as a strategy to increase access to services with a high standard of care.(93)

Mike Callaghan et al.'s systematic review of task shifting for HIV treatment and care in Africa argued that task shifting was a cost-effective quality care strategy for HIV/AIDs-affected African countries with severe human resources shortage in health.(94) However, other researchers contend that task shifting should not be considered a sole option in combating the health human resource crisis, because it can introduce other challenges, including real or perceived threats to affected health workers in regions where other health

[3] UNAIDS is the Joint United Nations Programme on HIV/AIDS; PEPFAR is the U.S. President's Emergency Plan for AIDS Relief.

system factors such as leadership and governance, regular drug supply, clear role identification, supervision and monitoring have not been addressed.(44, 87, 95)

2.3 Task shifting in maternal health

As discussed in chapter one, LMICs with human resource shortages have struggled to meet safe motherhood goals such as universal access to skilled birth attendants and facility-based births. Task shifting is a strategy designed to increase coverage of maternal newborn and child health interventions and improve health outcomes.(43) Shifting clinical tasks from higher-level healthcare workers to mid- and lower-level health workers have shown success in both HICs and LMICs. A study in Mozambique, comparing the outcome of caesarean section performed by assistant medical doctors and specialist obstetricians and gynaecologists, found no difference in serous postoperative complications.(93) In India, Jejeebhoy et al. compared the skills of 10 newly trained nurses and 10 physicians in assessing gestational age, abortion status of women and performing manual vacuum aspiration, and found no difference between the quality of services provided by physicians and nurses and that the rate of complications was low.(52, 96) Task shifting to increase coverage of maternal interventions at the community level, using LHWs and other auxiliaries, was also found to be feasible.(19, 97, 98) A cluster randomised trial in rural Pakistan of an antenatal health care package (promotion of antenatal care, maternal health education, use of clean delivery kits, facility births, immediate newborn care, identification of danger signs) delivered by LHWs in group sessions showed that it reduced neonatal mortality compared to the control cluster who received routine care.(99) A recent review by Solo et al. documented that CHWs can provide family planning methods such as pills, condoms, emergency and injectable contraception safely, and that they were able to refer

women for permanent methods of family planning.(100) Pilot studies in African countries (Uganda, Madagascar and Ethiopia) have been successful in training lower-level health workers to provide injectable contraception.(19)

Table 7 describes systematic reviews of task shifting from nurses/midwives to LHWs, CHWs and nurse auxiliaries which provide evidence for the optimised guideline recommendations WHO produced in 2012.(43) These reviews were instrumental in showing that task shifting to lower-level health workers was effective and increased access to maternal interventions. They also revealed common barriers and facilitators to effective task shifting implementation. Lassi et al. analysed 18 randomised controlled trials in Africa, Asia and Europe, and demonstrated that the participation of community-based health workers such as LHWs, community midwives and community and village health workers collectively reduced neonatal deaths by an average of 24%, stillbirths by 16% and perinatal mortality by 20%. It also reduced maternal morbidity by 25% and increased referrals to health facilities for pregnancy-related complications by 40%.(51) Other reviews showed that task shifting to lower-level unlicensed assistive personnel,(101) and CHWs,(88) did not produce inferior service and quality outcomes if personnel were trained well, and that it improved the productivity of health services and the skill mix of health personnel at low cost.(50, 102-104)

In summary, global experience provides evidence that task shifting to LHWs can reduce neonatal and perinatal mortality and improve antenatal care, family planning and maternal morbidity. Consequently, there is growing interest in increasing the scope of services that community-based health workers provide to include clinical prevention and management of complications during the childbirth and postpartum periods.(9, 43, 102)

Table 7: Systematic reviews on task shifting from nurses/midwives to lay health workers and nurse auxiliaries including Auxiliary Midwives to provide evidence for the optimize guideline process			
Author	**Title**	**Number of studies**	**Main findings**
Lassi et al. 2010	Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes	Eighteen cluster-randomised or quasi-randomised trials	Community based intervention packages were able to reduce neonatal deaths stillbirths, perinatal mortality and maternal morbidity
Fulton et al. 2011	Health workforce skill mix and task shifting in low income countries: a review of recent evidence	Thirty-one studies	Task shifting increases the productive efficiency of the delivery of health care services and reduces cost. Barriers: quality and safety concerns, professional and institutional resistance, and the need to sustain motivation and performance
Hundley et al. 2012	Should oral misoprostol be used to prevent postpartum haemorrhage in home birth settings in low-resource countries. A systematic review of evidence	Ten papers – two RCTs and four non-RCTs	Distribution of oral misoprostol by frontline health workers is effective in reducing incidence of PPH
Glenton et al. 2013	Barriers and facilitators to implementation of lay health worker programs to improve access to maternal and child health: qualitative evidence synthesis	Fifty-three studies	A close relationship between LHWs and their recipients is vital for program success. It is important to offer services that recipients perceive as relevant; to ensure regular and visible support from other health workers and community leaders; and to offer appropriate training, supervision and incentives

Glenton et al. 2013	The effects, safety and acceptability of compact, pre-filled, auto-disable injection devices when delivered by lay health workers	Six qualitative studies	Compact pre-filled auto-disable devices (CPADs) were acceptable to health workers and providers. Lack of evidence on effects and safety of using CPADs when delivered by LHWs
Gilmore et al. 2013	Effectiveness of community health workers delivering preventive interventions for maternal and child health in low-and middle-income countries: a systematic review	Seventeen studies	CHWs were effective in conducting five main prevention activities: malaria prevention, health education, breast feeding promotion, essential newborn care and psychological support
Colvin et al. 2013	A systematic review of qualitative evidence on barriers and facilitators to the implementation of task-shifting in midwifery services	Thirty-seven studies	Task shifting involving a midwifery model of care is complex and requires careful planning, implementation and ongoing supervision and support
Lassi et al. 2014	Evidence from community level inputs to improve quality of care for maternal and newborn health: interventions and findings	43 systematic reviews published before May 2013	Community-level inputs significantly improve immunisation uptake and breastfeeding initiation with reductions in antenatal hospitalisation, episiotomy, instrumental delivery and hospital stay. At community level, home visitation, community mobilisation and training of CHWs and TBAs have the maximum potential to improve a range of maternal and newborn health outcomes

Among the obstetric causes of maternal mortality, PPH, pre-eclampsia/eclampsia and sepsis remain the major contributors.(105) A study using data from 29 countries showed that PPH accounted for 25%, preeclampsia/eclampsia for 25% and sepsis for 8% of all maternal deaths.(106) Interventions CHWs can undertake to prevent these conditions, as well as evidence for their effectiveness, are described in the following sections.

2.3.1 Prevention of postpartum haemorrhage

Use of uterotonic drugs immediately after the baby is delivered is the recommended intervention to prevent PPH. An injectable uterotonic, known as oxytocin, is the drug of choice, but requires cold chain storage and a worker capable of providing injections. Misoprostol is an oral drug without the need for cold chain storage and with a lower price than oxytocin; WHO has recommended its use in settings where oxytocin is not available as an effective measure for prevention of PPH by community-level health workers.(43)

A Cochrane review which included 78 studies (59,216 women) showed that There was no statistically significant difference in maternal mortality between misoprostol and control groups overall in 31 studies with a risk ratio (RR) 2.08, 95% confidence interval (CI) 0.82 to 5.28 and for the trials of misoprostol versus placebo (10 studies); RR 2.70; 95% CI 0.72 to 10.11 and for misoprostol versus other uterotonics (21 studies); RR 1.54; 95% CI 0.40 to 5.92.(107)

A study done in Nepal demonstrated that trained community volunteers were able to provide misoprostol to women in the community; the rate of uterotonic protection for deliveries rose from 11.6% to 74.2%, with the largest gain among the poor, the illiterate and women from remote areas.(108) Smith et al. also suggested that misoprostol is well accepted by the community and can be delivered by CHWs; coverage rates were higher with

distribution via CHWs and TBAs than via skilled antenatal care providers in facilities.(49) A meta-analysis of studies of use of misoprostol in community settings demonstrated that oral misoprostol is safe, effective and inexpensive for women during childbirth in situations where there is no skilled attendant. It is also the only option at present for preventing PPH and reducing blood loss in these settings with no skilled birth attendant.(109-112)

Although, there is evidence for the effectiveness of misoprostol from many countries, Starrs and Winikoff argue that the evidence has not been translated into practice in many parts of the world.(49, 112-115) Some of the challenges they identified were misoprostol being a drug used for other indications of reproductive health such as induced abortion, cervical priming, labour induction and uterine evacuation after failed pregnancy. This often leads to worries and misperception that CHWs might misuse the drug for interventions other than that indicated by policymakers and specialist obstetricians and gynaecologists.(113) Misuse of drugs for other purposes such as termination pf pregnancy was highlighted as a policy-level limitation by stakeholders involved in the guideline implementation process in Uganda and Tanzania.(116) Other factors of concern were availability and registration of misoprostol and lack of evidence-based national guideline and provider training, which may all lead to delay in effective implementation of the use of misoprostol in community settings.(113) In many countries misoprostol is registered commercially for its original use in gastric ulcer but not for the purpose of PPH; however, in some developing countries, it has been used for PPH without any registration. Moreover, evidence-based guidelines for the use of misoprostol for PPH at national level are lacking in many settings, although there is a WHO guideline.(117) Strong advocacy is required to improve the availability of misoprostol at national level, which needs enhancement of

registration, inclusion in the national essential medicine list, a national guideline and appropriate training of providers for effective implementation of misoprostol for prevention of PPH in low-resource settings.(113)

2.3.2 Prevention of pre-eclampsia/eclampsia

Magnesium sulfate is the preferred drug for prevention and treatment of eclampsia; it needs to be injected by a skilled attendant with close monitoring and timely delivery.(21) However, interventions to prevent pre-eclampsia can occur at the community level.(118) Interventions that have shown clear benefit are low-dose aspirin and dietary calcium supplementation,(21) but insufficient evidence means the WHO only recommends these interventions by CHW with targeted monitoring and evaluation.(43) Early detection is vital for timely prevention, therefore monitoring blood pressure during antenatal visits has been highlighted as important to enhance early referral.(118) A study in India on feasibility of task shifting the identification, emergency treatment and referral for women with pre-eclampsia by CHWs reported concerns by health care providers about CHWs' knowledge and competence in clinical skills assessment, but strong community support for CHWs' ability to check blood pressure and assess danger signs.(119) A recent review of community-level interventions for pre-eclampsia in Nigeria, Pakistan, India and Mozambique demonstrated the need for improvement of CHWs' knowledge, provision of blood pressure measurements, supportive supervision and referral mechanisms for routine management of hypertensive disorders of pregnancy, along with expanding CHWs' role in remote areas.(120) In 2016, WHO published new guidelines recommending eight ANC visits, including regular blood pressure measurement, during the third trimester, which CHWs can perform.(121)

2.3.3 Maternal sepsis

Sepsis associated with pregnancy and childbirth can be prevented using stringent infection control measures both at the community level and in hospitals. General aseptic measures such as ensuring a clean birth environment, use of clean instruments for delivery and cutting the umbilical cord, and handwashing with soap are widely accepted sepsis prevention practices.(21) Although there is little evidence on use of prophylaxis antibiotics for operative vaginal delivery (forceps and vacuum) and third or fourth degree perineal tear, the recent WHO guideline recommends their use for the latter conditions.(122) Currently, caesarean delivery is the single most important risk factor for maternal sepsis, and use of antibiotic prophylaxis before surgery has been proven to be effective. (21, 123) Rupture of the foetal membranes very early before the time of delivery may increase the risk for severe maternal sepsis, and infection of the foetal membrane and use of prophylactic antibiotics is recommended. (21) Management of sepsis using antibiotics before referral to the nearest health facility has been effectively carried out by CHWs using preassembled package of antibiotics in LMICs.(19, 124, 125)

2.4 Barriers and facilitators to task shifting effective maternal interventions

Although many researchers consider task shifting to be an effective strategy, as per evidence-based intervention guidelines (50, 116, 126-128), others argue that it is neither a cheap option nor a shortcut path to resolving the human resource shortage crisis.(81, 87, 129) Even with evidence-based guidelines in place, some health systems are unable to support the use of these guidelines in practice. This has been labelled the “know–do gap” by researchers working in guideline implementation process.(79, 130)

Several researchers have identified barriers and facilitators to the implementation of effective maternal interventions.(79, 98, 131-133) According to Deller et al., five essential components are necessary for effective task shifting: determination of roles, functions and limitations; policy and regulatory support; determination of requisite skills and qualifications; education and training; and service delivery support, including management and supervision, incentives and/or remuneration, medication and supplies, and referral systems.(79) These components are discussed below.

2.4.1 Defining roles, functions and limitations

In allocating new tasks to a health worker, understanding of their current tasks and role is an essential prerequisite to task shifting.(79, 134) Role identification ensures that the new task is not causing any additional burden to the health worker. In addition, it is important to ensure that the new task is well understood by the health worker concerned.(134) A study in Uganda highlighted that failing to design an HIV/AIDS service delivery program in coordination with stakeholders, including front-line health workers, created substantial misunderstanding.(134) Similarly, a qualitative review of 13 studies in sub-Saharan African countries demonstrated that task shifting planners must consider the cadres' identities and roles and that all interventions need to be designed in collaboration and coordination with the cadres and stakeholders affected by the task shifting process.(135)

The second aspect of defining roles and limitations is to clearly understand who will be doing what. For example, a nurse may provide ARVs to patients, with a CHW taking the role of a counsellor and providing education which may have been previously delivered by the nurse.(79) This sharing of tasks can build better teamwork and maintain positive

relationships. Although in general health workers from whom the task is shifted are positive about the change,(94, 136) nurses have reported problems with TBAs being given counselling and postnatal care tasks, pushing them into a more medical role, which nurses considered a loss of their own caring role.(137) Unclear role boundaries and lack of understanding of the potential benefits may introduce perceptions of disempowerment for health workers from whom the task has been shifted, and result in relationship and trust problems.(135)

Further potential consequences of task shifting include clarification of the role uncovering practices and responsibilities which might not match of health workers' job descriptions.(138) CHWs often perform roles which are beyond their job description due to community demand and to increase their social status within the community.(135, 139) This fundamental risk needs to be taken into account as part of the task shifting intervention. The task shifting intervention must be clear that health workers affected know the limit of their assigned role and systems support must be in place to ensure that they perform their role as identified. Clear role definitions and boundaries are needed not only to avoid misunderstanding between health workers but also to harmonise with the broader health system context.(87, 94)

2.4.2 Policy and regulatory support

In many developing countries, lack of clear policy and leadership constrains the progress of the task shifting agenda. WHO guideline implementation processes aim to involve various stakeholders at country level, but are often delayed due to system factors such as frequent change of ministerial-level health personnel, lack of awareness among professional associations, and resource limitations, including funding.(140) Strong

leadership and commitment in planning about to whom the task should be shifted, what task should be shifted, where to set the performance limits and how to ensure the best fit with the existing role and scope of practice are important in decision-making. In this regard, pilot program evidence has been shown to assist policymakers' decisions about broader scaling up of task shifting activities in Nepal with respect to prevention of PPH by CHWs.(141)

2.4.3 Determination of requisite skills and qualifications

Health workers to whom a task is shifted must possess the skills and qualification to conduct the new task. For example, literacy may not be an important requisite for a CHW's original assigned task of health promotion, but will if the new task involves clinical documentation or record-keeping.(79, 142) Therefore a skills assessment and then attainment of the skills and qualifications required to take on the new task must occur for health workers to perform the shifted task efficiently.(79, 116)

2.4.4 Education and training

Health workers to whom the tasks will be shifted need appropriate training. Lesser-skilled CHWs with low levels of education need practical hands-on training with continuous monitoring and supervision, which has been identified as often lacking in countries using CHWs.(116) Participants in a mixed method study in Uganda and Tanzania mentioned that one of the main barriers to implementation of improving access to and use of maternal health commodities (oxytocin, misoprostol and magnesium sulphate) was poor-quality training, including lack of practical skills training and inadequate training materials.(143) However, successful task shifting has been demonstrated in programs using competency-based training to CHWs along with certification and supportive training resources.(79, 144)

Involvement of professional institutions and associations is also required for preparation of training materials and guidelines development.(116, 132, 145) It often takes time to reach to consensus on new guideline implementation with multiple stakeholders. For example, lack of integration and communication between different groups of obstetric providers in Kosovo was identified as a barrier to implementation.(146) Even provision of guidelines to clinicians may be hampered by delay in distribution and poor communication, often resulting in failure to implement guidelines in a timely manner.(116) Therefore, guideline documents need to be prepared and distributed thoroughly at a local level.

2.4.5 Service delivery support

Management and supervision

Effective supervision and monitoring requires not only the skill to supervise but a support system. Supervision guidelines, transportation resources, workload balance (time to supervise) are all important support structures.(98, 143) Research shows that irrespective of training quality, without supervision and support, knowledge or skill gains will not be maintained.(116) However, other challenges to supervision and ongoing support such as transportation problems and unclear pathways to referral have been identified as major barriers to implementing interventions in many developing countries.(46, 79, 145) Further challenges such as lack of understanding and coordination between health workers may affect the sustainability of interventions.

Skills that are new to health workers and involve a change in clinical practice, such as prevention and treatment of PPH, require great coordination between different levels of health workers. Studies report that unclear role boundaries and poor coordination between health workers often undermine relationships and trust, hindering implementation of task shifting.(79, 116)

Referral system

Task shifting to CHWs requires an effective and functioning referral system. Often task shifting programs train CHWs and TBAs on danger signs but fail to secure an effective referral pathway for when they are detected.(132) Increasing knowledge alone does not guarantee performance of new tasks effectively, particularly if there is no referral support. Some of the main barriers identified in referral of patients are lack of health professionals to refer to, lack of transportation, and poor relationships between the health personnel the task is shifted to and from, such as TBAs and MWs.(79, 132)

Incentives and/or remuneration

Task shifting often requires voluntary LHWs to take on new roles which involve more work. Dawson et al. advised that appropriate incentive packages and recognition systems are required to retain LHWs.(147) The literature contains debate about incentivising LHWs. Some researchers are opposed to financial incentives, while others suggest that non-monetary incentives such as recognition certificates, support for income generation activities such as selling commodities, uniforms and support from the health system are more appropriate for motivation and retention.(79, 116, 143, 147-149) McPake et al. mentioned lack of interconnectedness between human resource constraints and funding mechanisms, in which incentives and salaries of lower level cadres are often not included, as a problem.(150) Lack of incentives and referral constraints may cause attrition among health workers, especially in rural or remote areas where task shifting interventions are mostly needed.(116, 132)

Medications and supplies

LHWs require medication and medical supplies to perform new tasks. In weak health systems, poor supply chain management and lack of clear guidelines on how to use and

distribute drugs are common barriers to task shifting.(116) A study of increasing access to basic emergency obstetric and newborn care in Nigeria found that the main challenges for new health workers were irregular supply of medications and consumables and infrastructure difficulties such as inadequate power supply and poor communication.(79) Studies often highlight health system funding constraints as barriers to implementation of task shifting guidelines.(116) Lack of funding for the procurement of essential medicines and supplies and also to train and employ sufficient health care personnel to implement interventions were also identified as barriers in Uganda, Myanmar and Malawi.(116, 143)

2.4.6 Relationship with the community and health care providers

When task shifting interventions are designed, program planners often fail to realise the importance of LHWs' positioning and relationship within the community. This was highlighted by Campbell and Kerry in an article on the task shifting of CHWs for AIDS care in poor countries. Many CHWs in LMICs have been in the system since primary health care initiatives began in the 1970s, and their community embeddedness (meaning strong relationship with the community) must be recognised and utilised efficiently.(83-85, 151) Most CHWs live within the community they serve. Community members often describe them as reliable and acceptable health care providers who are easily accessible.(131, 152, 153) A qualitative review documented that LHWs were often the preferred type of health workers in the community, and program planners must take this closeness to their recipients into account when planning task shifting programs.(131) Community members often describe LHWs' characteristics as respectfulness, kindness, concern and appreciation for their flexibility in providing care.(152-154) Glendon et al. asserted that this relationship

was built upon trust, empathy and respect and was essential to program success.(131, 155, 156)

Researchers have described the relationships between LHWs and health care providers differently. LHWs often describe the relationship as positive and state that they appreciate their immediate supervisors' support.(138, 156) Lay health counsellors involved in provision of a voluntary counselling and testing for prevention of mother to child HIV transmission program mentioned that they were respected and treated well by the nurses who worked with them.(156) Conversely, health care providers often appreciate LHWs' work, seeing them as a bridge between the community and the health system and advocates for the community and the health care provider.(131, 157-159) However ,some have given negative feedback on LHWs as over-confident and usurping their roles.(138) An evaluation of community case management of childhood illness in Nicaragua noted that the relationship between health care providers and CHWs improved over the project period. Health care providers were initially negative about the LHWs, but changed their perspectives as they saw the benefits in terms of improved care.(154) This highlights that when planning task shifting programs, relationships within the community and health system must be clearly assessed, understood and not compromised.

2.4.7 The role of context in task shifting

Examination of task shifting practices in LMICs have shown that they enhanced the efficient use of existing human resources and improved access to essential services among the community most in need.(94, 95, 160) In shifting tasks from one health care provider to another, it is critical not only to examine whether the product is effective but also to ensure that the practice is acceptable to all stakeholders.(161) As task shifting is complex, it has been pointed out that careful planning, systematic implementation and regular supervision

and support are needed to ensure that quality care is provided to those most in need.(50, 138, 147) A review of the implementation of task shifting programs in Rwanda, Afghanistan, Nigeria and Nepal found that pilot programs using existing community cadres with supportive program components such as training, supervision and mutual consensus between the health system and the community were common enablers of success. However, it was also mentioned that the task, choice of cadre and the scale of the program must be tailored to individual country needs.(141) Therefore, task shifting interventions which are proven to be effective in some settings may need contextual adaptation for others.(52, 53, 138) Without vigilant planning, task shifting alone will not be able to solve the health service human resource problems in developing countries.

2.5 Research on AMWs in Myanmar

Although there is a large amount of literature on CHWs and LHWs in both developed and developing countries, literature on AMWs in Myanmar is scarce. The restriction on international publications during the military regime may be a reason for this. A literature search was done to assess available evidence using the following search terms:

i) auxiliary midwife/midwives OR community health workers OR lay health workers OR voluntary health workers OR community midwife/midwives AND

ii) maternal health service OR antenatal health services/care OR perinatal health services/care OR postnatal health services/care OR child delivery OR home birth OR home child birth OR maternal interventions AND

iii) Myanmar OR Burma.

Thirty-seven articles published between 1982 and 2017 were identified, but only seven on AMWs in Myanmar. Government documents and grey literature were collected through personal contacts. Unpublished reports on three research studies were also collected.

Table 8 summarises the published and unpublished studies conducted on AMWs in Myanmar. Of the seven published articles, only three are specific to AMWs in Myanmar; the others are about all voluntary health workers, including AMWs. Two of the three published articles describe quantitative studies of performance and AMWs' intentions to stay in service.

Wangmo et al.'s (2016) study of 1,185 AMWs in Myanmar (40) was the largest study identified. The AMWs studied were from the GAVI-funded 21 project townships in 17 states and regions. AMWs were found to have performed nine deliveries on average, and performed 11 ANC and nine postnatal visits within the six months prior to the study. The study also showed that older AMWs were significantly more confident about taking care of patients than their younger counterparts.(40) The second quantitative study focused on the performance of 160 AMWs in a specific township, and found that good knowledge, residing in a village with no other providers, being located more than 30 minutes' travelling distance from the nearest health facility, and lower education status were associated with high performance.(77)

Both quantitative studies highlighted the need for policy-level commitment, adequate supply of AMW kits and drugs, supervision and training support, and financial incentives for retaining and improving the AMW service.(40, 77) The last of the three

published articles describes a qualitative exploration of AMWs' views on receiving health messages via mobile phones; the researchers found that this would be acceptable. The main

Table 8: Summary of studies of auxiliary midwives and maternal and child health in Myanmar				
Published studies				
	Location	Study design	Sample	Findings
Chauls (1982)	Myanmar	Case report		Strong political commitment towards the program together with Buddhism and other aspects of Burmese culture, effective supervision, adequate support of drugs and deliveries were major reasons for success
Tin Hlaing Min et al. (2015)	Salin township, Magwe Division	Quantitative cross-sectional survey	160 AMWs	Performance of AMWs was related to good knowledge, support and no health care provider in the same village, along with lower education and distance away from a facility
Wangmo et al. (2016)	21 townships in 17 states and regions (GAVI HSS townships)	Quantitative cross-sectional survey	1,185 AMWs	Older and longer-serving AMWs had better confidence about taking care of patients. 90% of the respondents intended to stay more than five years. Need for supervision, refresher training, replenishment of the AMW kits and transportation cost
Vogel et al. (2016)	Myanmar, Uganda, Tanzania and Ethiopia	Mixed methods	31 questionnaires and 42 workshop participants	Health workforce shortages, drug and equipment procurement, distribution and management systems were barriers, along with insufficient policy-level commitment
Watt et al. (2016)	Ayeyarwady Region	Qualitative interviews	54 service users, 17 providers, 14 managers and policymakers	Accessibility, affordability and acceptability were some of the factors in access to and choice of provider. Perceived quality and effectiveness are necessary for trust to develop. Social complexities should be considered to ensure effective service delivery

Van Der Wal et al. (2016)	South Yangon District (2014)	Qualitative explorative	19 semi-structure interviews and 3 FGDs	Despite some barriers, AMWs embraced the pre-/postnatal application using mobile phones. Internet network problems and lack of supervisor support to use the app were main barriers. Technical problems require continued support and training
Wangmo et al. 2017	20 project townships under GAVI project	Quantitative and qualitative	Record review and in-depth interviews	Recruiting AMWs and CHWs addresses health workforce gap but adequate supply of kits, support of referral allowance, supervision and training are needed to retain them and maximise their contribution
Unpublished studies				
Department of Health (Thein Dan 1985)	4 townships in Sagaing division	Cross-sectional descriptive	109 AMWs	81% had a high knowledge score. Need for supervision and replenishment of essential equipment (scales, AMW kits) for proper recording and reports (need to supply stationery)
UNICEF & Department of Health - Ministry of Health Myanmar (2005)	12 townships in 12 state and division	Cross-sectional descriptive	211 AMWs (17 AMWs in each township)	Level of knowledge and skill related to maternal and child health was low. Utilisation of AMWs was high in remote rural villages. Refresher training is essential and needs to be standardised across all townships. The training manual should be updated. Roles and responsibilities of the AMW need to be well defined. AMW kits need to be replenished or replaced as required
Theingi Myint et al. (2011) Assessment on Auxiliary Midwife Training Package	4 townships in Mandalay Division (Kyaukse, Singkaing, Myittha and Tadar-U)	Cross-sectional descriptive mixed methods	287 AMWs (all functioning)	Less than one birth per year (184 births among 287 AMWs). Over 60% had an unsatisfactory knowledge score and a below-average performance score. Selection criteria need to be locally adapted and training should enable AMWs to perform emergency obstetric care before timely referral. Career advancement of AMWs should be considered

barriers to the introduction of this technology were reported to be internet network problems and lack of supervisor support.(162)

Two unpublished research papers reported on the knowledge and practice of AMWs. The authors collected data on knowledge of ANC, intra-natal care and postnatal care using questionnaires, and showed that knowledge was below satisfactory with a need for better supervision and revision of the training curriculum.(74, 76)

Task shifting in the Myanmar context

In 2014, WHO carried out the first task shifting initiative in collaboration with the Department of Public Health. The GREAT Project [Guideline-driven, Research priorities, Evidence synthesis, Application of evidence, and Transfer of knowledge] sought to select priority maternal and newborn health interventions and explore the barriers and facilitators to implementing the task shifting guideline. In the process, AMWs were identified as the main workers suitable for task shifting, due to the significant shortage of skilled health workers in rural and remote areas of Myanmar.(143) This was supported by other research evidence in which AMWs were identified as an important means of filling the MCH gaps in rural areas of Myanmar.(163) I was involved in conducting focus group discussions (FGDs) and a pre-workshop survey with health care providers including policymakers, NGOs working in MCH, and health care providers from the government health system and co-authored a paper about the study.(143)

Although AMWs in Myanmar fit with WHO's definition of auxiliary nurse midwife/auxiliary midwife in terms of education and training qualifications, competencies identified in the guideline were found to differ greatly from the competencies of AMWs in Myanmar in practice (Table 9). As described in chapter one AMWs are community

volunteers only trained for six months on preventive and promotive role and assisting normal childbirth which differs greatly from others cadres with the name of Auxiliary Nurse Midwives who are trained for 18 to 24 months in countries such as India (18-24 months), Nepal (18 months) and Thailand (24 months).(164-166) Majority of these cadres with the similar name in the regions are categorized in their health systems as skilled birth attendants which is equivalent to Myanmar Midwives although they use the name Auxiliary Nurse Midwives.(164) This may be one of the reason Myanmar AMWs skill and competencies differ from the WHO as their training and status limits their skill and competencies.

In the GREAT network project, stakeholders (health administrators, policymakers, NGOs, professional associations, frontline healthcare providers and researchers) identified the most feasible interventions which could be considered for task shifting of AMWs in Myanmar (Table 10).(167) Although the tasks to be shifted and to whom to shift the task were identified, how to actually implement the guideline initiatives in the rural areas where the need is greatest remains a challenge.

Table 9: Comparison of the WHO cadre definition and competencies of auxiliary midwives in Myanmar	
Auxiliary nurse midwife (ANM – WHO cadre definition)	**AMW as defined in the Myanmar AMW manual (2015)**
Have some training in secondary school. A period of on-the-job training may be included, and sometimes formalized in apprenticeships. Like an auxiliary nurse, an auxiliary nurse midwife has basic nursing skills and no training in nursing decision–making. Auxiliary nurse midwives assist in the provision of maternal and newborn health care, particularly during childbirth but also in the prenatal and postpartum periods. They possess some of the competencies of midwifery but are not fully qualified as midwives (The recommendations also note that definitions, length of training and competencies may vary between health systems)	Auxiliary Midwives in Myanmar have some training in secondary school. They complete a 3 month on-the-job training programme. Auxiliary midwives assist in the provision of maternal and newborn health care, particularly during childbirth but also in prenatal and postpartum care. They generally work under the supervision of midwives but (particularly in rural settings) they may have no direct supervision
Assumed competencies of ANMs within WHO recommendations	**Current AMW competency in Myanmar**
Promotion of maternal, newborn and reproductive health interventions	**√**
Oxytocin administration to prevent and treat PPH – standard syringe / CPAD	X
Misoprostol administration to prevent PPH	X
Misoprostol administration to treat PPH	X
Oral supplement distribution to pregnant women	X
Low dose aspirin distribution to pregnant women at high risk of pre-eclampsia/eclampsia	X
Continuous support for women during labour, in the presence of a skilled birth attendant	**√**
Puerperal sepsis management with oral antibiotics	X
Puerperal sepsis management with intramuscular antibiotics – CPAD	X
Maternal intrapartum care (including labour monitoring, e.g. using a partograph; foetal heart rate monitoring by auscultation; decision to transfer for poor progress; delivery of the baby)	**√**

*ANM=Auxiliary Nurse Midwives; PPH=Postpartum haemorrhage; CPAD=compact pre-filled auto-disable device; WHO=World Health Organization [Table adapted from the GREAT guideline implementation report for Myanmar, 2014]

Table 10: Five top feasible interventions to be implemented by AMWs in Myanmar (according to the stakeholders involved in the GREAT network)	
1.	Oral supplement distribution to pregnant women
2.	Administration of misoprostol to prevent postpartum haemorrhage (where auxiliary nurses are already an established cadre)
3.	Administration of misoprostol to treat postpartum haemorrhage before referral (where auxiliary nurses are already an established cadre and where a well-functioning referral system is in place or can be put in place)
4.	Management of puerperal sepsis with oral antibiotics
5.	Performance of neonatal resuscitation (bag and mask)

2.6 Summary

Despite years of government investment in AMWs as a large-scale community based program (1978–2017), documentation of the initiative is poor. The information presented here goes some way towards filling the gap. A few studies highlight the need for better supervision and training. However, most of the studies to date were program-based. There is no sound understanding of the role of AMWs in Myanmar and their relationship with the community and the health system, which is crucial for the implementation of future programs. The global literature highlights that CHWs are competent in performing interventions that reduce maternal morbidity and mortality. However, research is needed to show how Myanmar's AMWs and health system could use task shifting of essential maternal interventions to save lives in rural areas. Ensuring that AMWs are trained, supervised and supported in hard-to-reach rural remote areas, often where the health system is at its weakest, requires considerable investment. Making sure that scale-up is based on global best practice and systematic scientific evidence is the key to achieving better maternal and newborn health care in hard-to-reach areas of Myanmar**.** This study will make a timely contribution to the evidence and literature base for improving maternal health services in rural Myanmar.

2.7 Aims and objectives of the research

The overall aim of the study is:

> *To examine the role of auxiliary midwives and the feasibility and acceptability of task shifting selected interventions to improve maternal and newborn health care in Myanmar.*

Specific objectives:

1. To examine the understandings and expectations of health workers and community members regarding the role, responsibilities and practices of auxiliary midwives.
2. To determine the knowledge and practices of auxiliary midwives with regards to maternal and newborn health care at the time of childbirth.
3. To examine the feasibility and acceptability of task-shifting essential maternal interventions to auxiliary midwives.
4. To examine the acceptability, feasibility and perceived utility of using auxiliary midwives to provide two specific community-based interventions (misoprostol and inhaled oxytocin) for the prevention of post-partum haemorrhage.

Chapter Three: Methodology

This chapter outlines the methods used to examine the role of AMWs and the feasibility and acceptability of task shifting selected interventions to improve maternal and newborn health care in Myanmar. The results chapters include detailed descriptions of methods used to address each of the study objectives, so to avoid repetition this chapter provides an overview of the methods and describes the rationale for choosing each method. In addition, this chapter frames the studies within the implementation research paradigm.

The research consisted of two studies, one main study to fulfil objectives one, two, three and four (misoprostol) and the second study to fulfil objective four (inhaled oxytocin). The main study is called the AMW task shifting study and the second study the inhaled oxytocin study hereafter.

3.1 Implementation research

Although various effective and proven interventions are used to improve the health of mothers and children, communities and countries still face many challenges in how to implement them. This is evident in the estimated 303,000 women and 8.2 million children aged under five years, including 3.3 million newborns, who die each year from preventable or treatable diseases.(4, 9, 17) Guidelines and implementation strategies produced by renowned organizations such as WHO and UNICEF have proven effectiveness, but the question remains: how to implement these interventions in each country's complex health system settings? Implementation research aims to answer some of these questions. Implementation research is defined as:

> …the scientific study of the processes used in the implementation of initiatives as well as the contextual factors that affect these processes. One major purpose of implementation research is to support and promote the successful application of interventions that have been demonstrated to be effective.(168) (page 27)

Even when interventions are designed in similar ways, implementation occurs differently due to contextual factors.(9, 169) Many researchers have articulated lessons learned from implementation in multiple settings, including common enablers and barriers as well as context-specific issues.(169, 170) The importance of context is underlined by the fact that most maternal and child deaths are concentrated in resource-constrained settings. According to a recent analysis, 99% of these deaths occur in LMIC.(9, 170) Implementation of effective MCH interventions in LMIC involves overcoming a complex mix of factors such as insufficient financial support, human resources and political commitment.(116, 143, 171) Myanmar's alarming maternal mortality (described in section 1.2.1) makes it a priority country for MCH interventions, and its health workforce shortage makes it a natural target for exploration of task shifting initiatives. A national-level workshop on task shifting in 2014 identified which interventions would be suitable for implementation by which cadres in the health system, and identified that task shifting was possible for AMWs.(167) Common barriers and enablers were identified from both the health system and providers' perspectives;(143) however, the community actors who would be primarily affected by the implementation were not included in this research initiative. Accordingly, this PhD research improved upon earlier work by incorporating the community actors' perceptions of how AMWs could be involved in task shifting.

Another aspect of good implementation research is collaboration and partnership.(168) As implementation research aims for integration into policy and program decision-making, collaboration and partnership with decision-makers, from the beginning to the end of the research process, was essential. The Director of the Maternal and Reproductive Health Division within the MOHS was involved in the study from the design stage to the planning and implementation of the research project. In addition, researchers from the Department of Medical Research, MOHS were involved in the design and data collection and analysis phases in order to maximise the likelihood of implementation success. Implementers' inputs were very useful in choosing the study sites (the three townships chosen are hard-to-reach townships within the Magwe division, which has among the highest maternal and childhood mortality rates in the country) and I worked closely with personnel from the Department of Public Health, and gained a sound understanding of the need for evidence of AMWs, permission processes and the nature of the community in which data collection took place.

3.2 Mixed methods research

A mixed methods approach was identified as appropriate for implementation research because it enables the researcher to understand an issue from multiple perspectives using different data collection methods in a practical way.(168, 172, 173) According to Creswell (2014), mixed methods research is defined as:

> …an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data and using distinct designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches

> provides a more complete understanding of the research problem than either approach alone.(174) (page 4)

To understand the role of AMWs and their relationships with the community and the health system in depth, qualitative methods were most appropriate. However, to measure AMWs' skills and practices and their determinants, quantitative methods were more appropriate. Quantitative and qualitative methods complemented each other in giving an understanding of the acceptability and feasibility of the task shifting interventions, because the quantitative data enabled identification of the proportions of AMWs practising the interventions, and the qualitative methods were able to capture why and how interventions were being carried out in the community. Different mixed methods approaches were used for different purposes, and this PhD research used convergent parallel mixed methods to answer the research questions.(168, 173, 174)

> Convergent parallel mixed methods is a form of mixed methods design in which the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. In this design, the investigator typically collects both forms of data at roughly the same time and then integrates the information in the interpretation of the overall results. Contradictions or incongruent findings are explained or further probed in this design.(174) (page 15)

The rationale for using convergent mixed methods was that both the qualitative and quantitative data contribute to understanding practices around the time of birth, the roles and relationships of AMWs in the community and in the health care system, and the feasibility and acceptability of task shifting the three maternal interventions (oral vitamin supplementation during the antenatal care period, provision of misoprostol to prevent PPH

during birth, and use of oral antibiotics for puerperal sepsis during the postpartum period). In this approach, qualitative and quantitative data were collected concurrently, analysed separately, and then compared to assess whether the findings confirmed or conflicted with each other.

3.3 Rationale for choice of methods for each study objective

Two main studies were conducted to achieve the research objectives. Qualitative methods included key informant interviews (KIIs) and FGDs, and the quantitative method was a cross-sectional survey. A specific study design was formulated for each of the study. Table 11 gives a brief description of the methods used for each study objective.

Objective one: To examine the understanding and expectations that health workers and community members have regarding the role, responsibilities and practices of AMWs

Qualitative research methods were most appropriate to address the objective as participants can explain from their own perspectives, expectations and understanding what role AMWs played in the community. It allows them the opportunity to explain more in-depth, and without influence from the researchers, which is limited with quantitative methodologies. In this regards two methods were employed: Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). Detailed description of the methodology is described in session 3.4.4 and chapters four, six and seven.

Table 11: Data collection methods used for each study objective				
Objective of the study	**Data collection methods**	**Study Population**	**Number of FGDs/IDIs/survey respondents**	**Number of respondents**
1. To explore the understanding and expectations of health workers and community members regarding the role, responsibilities and practices of AMWs	Qualitative	AMWs Mothers Community members Health care providers (MWs, national, district and township level)	15 (5 FGDs with AMWs, 4 with mothers,4 with community members and 2 with MWs) 10 Key informant interviews (3 with national, 2 with district and 3 with township and 2 from 3MDG fund)	123 (33 AMWs, 29 mothers, 36 community members 15 MWs and 10 key informants)
2. To determine the knowledge and practice of AMWs in regard to maternal and newborn health care at the time of childbirth	Quantitative	AMWs	Questionnaire survey of all AMWs from three township in Magwe district	262 AMWs
3. To examine the feasibility and acceptability of task-shifting essential maternal interventions to AMWs	Qualitative and quantitative	AMWs Mothers Community members Health care providers (MWs, national, district and township level)	15 (5 FGDs with AMWs, 4 with mothers,4 with community members and 2 with MWs) 10 KIIs (3 with national, 2 with district, 3 with township, 2 from 3MDG fund) and survey of all AMWs from three townships in Magwe district	385 (33 AMWs, 29 mothers, 36 community members, 15 MWs and 10 key informants and 262 AMWs for the questionnaire survey)

4(a) To examine the acceptability, feasibility and perceived utility of using AMWs to provide two specific community based interventions for the prevention of PPH: misoprostol	Qualitative	AMWs Mothers Community members Health care providers (MWs, national, district & township level, funding agency)	15 (5 FGDs with AMWs, 4 with mothers,4 with community members and 2 with MWs) 10 KIIs (3 with national, 2 with district, 3 with townships and 2 from 3MDG fund)	123 (33 AMWs, 29 mothers, 36 community members, 15 MWs and 10 key informants)
4(b) To examine the acceptability, feasibility and perceived utility of using AMWs to provide two specific community based interventions for the prevention of PPH: inhaled oxytocin	Qualitative	AMWs MWs Mothers Health care providers (township level, obstetricians from both the public and private healthcare system and key informants from the pharmaceutical industry and UN agencies working on maternal and child health)	11 FGDs (4 AMWs, 3 MWs, 4 mothers) with 16 Key informant interviews	100 (26 MWs, 28 AMWs, 30 mothers and 16 key informants)

Objective two: To determine the knowledge and practice of AMWs in regard to maternal and newborn health care at the time of childbirth.

A cross-sectional quantitative study design was used to fulfil study objective two. The design allows collecting quantitative information from a defined population at a single point or period in time. This design is suitable for assessing point prevalence and can determine the association between dependent variables. The survey methodology is described in detail in chapter five.(1)

Objective three: To examine the feasibility and acceptability of task shifting essential maternal interventions to AMWs

To fulfil objective three, both qualitative and quantitative methods were used to understand the feasibility and acceptability of the task shifting of maternal and newborn interventions from all perspectives. Qualitative methods were used to discover the practices of AMWs during ANC, childbirth and postnatal care, including how and in what circumstances these practices were performed. Health care providers and community opinions and concerns about task shifting to AMWs and the feasibility and acceptability of the proposed interventions and why were explored using qualitative methods. Questions in the quantitative questionnaire relating to practice of the three maternal interventions helped to verify what was said in the qualitative interviews (including proportions). Sources of the drugs were also identified in the quantitative survey and contrasted with FGD results. A detailed description of these mixed methods is provided in chapter six.(2)

Objective four: To examine the acceptability, feasibility and perceived utility of using AMWs to provide two specific community-based interventions for the prevention of post-partum haemorrhage: misoprostol and inhaled oxytocin

Study objective four (a) Misoprostol study: The sample and methods from the main AMW task shifting study were utilised to fulfil study objective four (a); a detailed description of the methods is given in chapter seven.(175)

Study objective four (b) Inhaled oxytocin study: To examine the potential operational feasibility and acceptability of an inhaled oxytocin product for improving community-based care in Myanmar, a qualitative exploratory study was conducted. As there is little prior knowledge and literature on provider and community perspectives about the inhaled oxytocin product, qualitative methods were most appropriate to explore the issue. KIIs and FGDs were conducted to understand the acceptability, feasibility and perceived utility of inhaled oxytocin. The inquiry centred on three main groups of participants: community, lower-level health care facilities, and hospitals; and six main themes: practices around pregnancy, childbirth and the postpartum period, beliefs around PPH and bleeding, perspectives on medications around the time of birth, current practices involving oxytocin, and perspectives about an implementation strategy for inhaled oxytocin. The study methods are described in detail in chapter seven.

3.4 Study Methodology

3.4.1 Study period

The studies described herein were conducted between June 2015 and July 2016.

3.4.2 Study sites and populations

Study sites

The studies were conducted in the Magwe and Yangon regions of Myanmar. Magwe region in central Myanmar, with a population of 3.9 million, was purposively selected as a study site based on its high reported MMR (344 per 100,000 live births) and infant mortality rate (84 per 1000 livebirths). The region contains many hard-to-reach populations and in remote rural areas most births take place at home (nationally, 72%).(5) Yangon region was selected for the second study (the inhaled oxytocin study) because I needed to understand the differences between urban and rural settings that might influence oxytocin storage and usage. Yangon is the most populous and most developed region of the country with a population of 7.3 million.(5)

Ngape Township

Ngape has a population of 46,572 in 103 villages, and has one 25-bed township hospital, one station hospital, two RHCs and 14 sub-RHCs.

Gangaw Township

Gangaw has a population of 133,013 in 113 villages, and has one 100-bed township hospital, five station hospitals, seven RHCs and 33 sub-RHCs.

Seitphyu Township

Seitphyu has a population of 106,312 in 138 villages, and has one 25-bed township hospital, one station hospital, four RHCs and 22 sub-RHCs.

South Dagon Township

South Dagon Township is an urban setting with a population of 296,979. It has one 50-bed township hospital, one station hospital, two urban health centres and 32 wards.

Thanlyin township

Thanlyin is a large township which has both urban and rural characteristics, including 66 villages, and a population of 187,944. It has a 150-bed district hospital, one station hospital, five RHCs and 17 wards.

Study population

The study population was AMWs, community members and health care providers.

Auxiliary midwives

As noted in earlier chapters, AMWs are female voluntary health workers who provide basic health care services in villages lacking government-employed skilled midwives. AMWs have been serving rural communities for nearly four decades. In the participating townships nearly all villages have AMWs and large villages have more than one. AMWs do not receive any formal payments but do receive small incentives from the mothers and communities they serve, such as rice and clothing.(40)

Community members

Two groups within the community were included in the research: mothers with children under the age of three and community members representing each of the villages

in the study. Mothers with childbirth experience were the main information source in the qualitative interviews. Community members, both men and women and knowledgeable about their village, such as community leaders, teachers, village health committee members and elders, were selected to participate in the discussions.

Health care providers

Health care providers from different levels of the health system (national, district/regional, township), INGOs and funding agencies were selected to capture different health system perspectives. The national level is the main policy decision level and is situated in Nay Pyi Daw, where the MOHS is located. District and regional level health departments provide supervisory and technical support to the township level and guide the process of AMW recruitment, supervision, training and decision-making about AMW roles and tasks. Township-level health departments mainly manage the township health system, which is the backbone of primary health care and provides comprehensive health services at the local level, and is mainly responsible for implementation of the AMW activities. Midwives are the main supervisors of AMWs at the RHC level. For the second study, I included people from the pharmaceutical industry and specialist obstetricians and gynaecologists to broaden perspectives about the feasibility and acceptability of the inhaled oxytocin product.

3.4.3 Study design

The main AMW task shifting study used a mixed methods design consisting of both quantitative and qualitative research methods. For the inhaled oxytocin study, an exploratory qualitative research design was used.

3.4.4 Qualitative methods

Key informant interviews

As the term "key informant" suggests, we selected the person who we believed could give us the most relevant information based on their opinions and experience.(176) Careful selection of the participants increases the probability that the issue being studied is well understood. The purpose of the KIIs was to collect information from people with diverse backgrounds and opinions using in-depth and probing questions. This method also enabled learning about the AMWs from a broad perspective, including different levels of the health system and the actors involved in AMW program. Thus, I selected people who were involved in the design, implementation, training and selection of the AMW program. Representatives of different levels of the health system (national, district, township), INGOs and funding agencies were selected to capture diverse perspectives.

Limitations of KIIs include selection bias, where the respondents are selected to give answers the researcher wants to hear, and social acceptability bias, where the respondents' answers are based on the ideal social norms of the system.(177) To overcome these biases, questions were asked in different ways adjusted for the participants' characteristics, and participants were encouraged to answer from their own perspectives. Details of the KIIs involved in the study are described in relevant chapters.

Focus group discussions

An FGD is a discussion in which a group of people with similar backgrounds are gathered to discuss an issue, usually assisted by a moderator or a facilitator. FGDs are best used to gain a general perspective from many participants. FGDs allow participants to speak in third person terms even if describing their own experience.(178) FGDs also give the opportunity for group members to expand on the topic as they hear differing views, which does not occur in individual interviews. The members of an FGD can also hold each other accountable, minimising the reporting of false information.(178) To explore the different perspectives towards AMWs and the role they play within the community, mothers, community members, Midwives and AMWs themselves were asked to participate in FGDs. In my study, FGDs were carried out with Midwives, AMWs, mothers of children aged under three years, and community members in Ngape township, South Dagon township and Thanlyin township between June 2015 and February 2016. FGDs involving people with similar backgrounds and experiences meant they were mostly willing to discuss the issue openly (especially as the topic was not sensitive).

There are limitations inherent to FGDs. Mothers in the study were recruited through AMWs and Midwives, presenting the risk of selection bias of only selecting those who give birth with them. This bias was mitigated by informing Midwives and AMWs before the data collection that mothers who gave birth within the last three years at home with any person (AMWs, Midwives and Traditional birth attendants) are to be recruited. Also to capture a variety of perspectives and to obtain the most reliable results, AMWs from both hard-to-reach and easy-to-reach villages were selected. Details of the FGDs are included in the following chapters.

3.4.5 Quantitative cross-sectional survey

As the main objective of the quantitative study was to determine the knowledge and practice of AMWs in regard to maternal and newborn health care at the time of childbirth, a cross-sectional survey of AMWs was conducted in three townships of Magwe Division between July 2015 and February 2016. To reduce recall bias, all the practice questions referred to the six months before interview. A pre-test of the survey questionnaire was done before the actual data collection. All the interviewers in the study administered the questionnaire to two AMWs each from a different township (Thalyin) to test the wording and whether the participants understood the questions well. The questionnaire was revised after the pre-test and a final version was developed.

The limitation of this design is that it cannot assess causality, making it difficult to interpret the associations detected. However, the rapid availability of the results at an affordable cost makes this design attractive, especially for capturing information about AMWs from hard-to-reach populations in rural and remote areas. The study collected data from all AMWs within three townships. If probability sampling had been used to select AMWs in all townships within Magwe Division, the findings may have turned out differently.

3.4.6 Sampling procedures

Different sampling procedures were used depending upon the target population needed to meet the study objectives.

Qualitative research studies

Purposive sampling was used for the qualitative parts of both studies to ensure the selected individuals contained a breadth of experience.

For the AMW task shifting study, 10 key informants came from the national Department of Health and from district and township-level health departments involved in MCH planning and implementation. Fifteen FGDs (two with MWs, five with AMWs, four with community members and four with mothers of children under the age of three years) were conducted within both hard-to-reach and non-hard-to-reach areas. Fifteen MWs and 33 AMWs and 36 community members and 29 mothers with a child aged under three participated in the study.

Five advocacy meetings were undertaken with the district and township level authorities before data was collected. All the MWs and AMWs were selected using a list from the TMO and in consultation with a local NGO and the township health nurse who has knowledge of the villages in the township. MWs and AMWs were contacted one week before the interview and confirmation was made two days before the interview using phone and letters sent through personal contacts. The research team gave detail information on the venue and estimated time of interview and also ensured that travel expense will be reimbursed. Apart from the two FGDs with the MWs, which were done in the township hospital, all the AMW FGDs were done in community gathering places of the respective villages and the office of an international NGO in Ngape Township. All the individual interviews were done in private places chosen by the interviewee, and were mostly carried out in the offices of interviewees.

Mothers and community members were selected with the help of the local Midwife and AMWs. Information on recruitment of mothers, estimated time of interview and a place to conduct the FGDs was planned three days before the interview. For the community members, the research team explained about the study and requested to ensure that all

both male and female members of the community to be included for the interviews. All FGDs were conducted in community gathering places of the respective villages. As the research team members were Myanmar nationals, there was no language barriers. The process of the research team members explaining ethical procedures and permissions granted to the participants during the first session created reluctance among many participants in the beginning of the interviews or focus groups, as they saw the interviewers as academic professionals, creating a power imbalance. This was mitigated by first talking to them about their personal backgrounds and demonstrating an interest in their views regarding the topic, which took around five to ten minutes. It is still acknowledged that responses from participants may have been influenced by their perception of the research team.

For the inhaled oxytocin study, KIIs and FGDs were conducted to explore its feasibility and acceptability in rural and urban settings. Individual interviews (IDIs) occurred with rural and urban health care providers at the township level, obstetricians from both the public and private health care systems, and key informants from the pharmaceutical industry and UN agencies working on MCH. AMWs and Midwives for the FGDs were recruited under the guidance of the Township medical officer and the township health assistant. Mothers in the village were recruited through the respective Midwives in the study townships. Fifteen KIIs and 11 FGDs (three with Midwives, four with AMWs and four with mothers) were completed in urban and rural areas. Twenty-six MWs, 28 AMWs and 30 mothers with a child under three participated in the study. Details of the KIIs and FGDs are included in the following chapters.

Quantitative research study

For the quantitative study, three townships in Magwe region (Gangaw, Ngape and Seitphyu) were purposively selected to represent the geographical diversity of the region: one in the south, one in the far northeast and one in the centre, all with high maternal and infant mortality. The selection was based on discussions with the Director of Maternal and Reproductive Health Division and the District Medical Officer. All three townships were identified as hard-to-reach townships using 3MDG criteria. Since the townships were purposively selected, all AMWs currently working in each township were listed and recruited as a census rather than sampling to enhance the generalisability and external validity of the study. AMWs who were not in the township time of the survey, and those who could not attend the rural RHC due to bad weather or childcare responsibilities, were not able to participate. Of 308 AMWs invited to participate, 262 did so (85%).

Pros and cons of selecting the townships and the AMWs for the quantitative study

For a quantitative study, the ideal method of sampling is probability sampling to obtain a representative sample from the population. However due to constraints in resources and time, three townships were purposively selected, which may reduce their representativeness. However, as the selection of townships was based on health service delivery and geographical differences within the district, we applied the most feasible approach with results likely generalizable to other settings with AMWs in Myanmar. As noted earlier, to enhance generalisability and external validity, all the AMWs in each of the townships were selected. With more resources and time, a random sample of AMWs within each township of Magwe Division would have been possible.

3.4.7 Data collection, management and analysis

The methods described above were used to collect data, which was then handled and analysed as described below.

Qualitative research

FGDs and KIIs were digitally recorded. In addition, handwritten notes were taken to allow checking for consistency. All recordings were transcribed verbatim in Myanmar language from the digital recorders by the note takers and checked against field notes for consistency. Data were collected purposively to understand the different perspectives. During the data collection process, daily discussions were held with the interviewers and note takers around the main themes, organised using a matrix in Myanmar language. These discussions afforded the opportunity to undertake preliminary interpretation of the data collected while it was still fresh in the minds of the research staff. Before the actual coding, all transcripts were read and reread by myself in Myanmar language. Transcripts of FGDs and KIIs for the AMW task shifting study were coded using the Atlas TI software, which enables researchers to code in the original language. However, for the inhaled oxytocin study, transcripts of all the FGDs and interviews were translated into English. N Vivo version 10 (QSR International, Melbourne) was used to analyse data for the inhaled oxytocin study, as comparison was needed with other countries in the project.

Two data coders coded the transcripts separately. Inter-coder reliability was found to be over 80% after consistency checking using N Vivo software. The primary coding structure was developed around conceptual codes and sub-codes that identified the key concepts and essential dimensions of the main topics. Some topics had three levels of sub-

codes. The two researchers who coded the transcripts reviewed the coding and agreed on the final structure. Main topics (Table 12) and themes were pre-identified using the FGDs and the IDI guides and emerging themes were noted and discussed. In the study outputs, quotations are used to support the study findings and to enhance understanding of the local context.

Table 12: Main topics explored in the studies

AMW task shifting study	**Inhaled Oxytocin study**
Current practices around childbirth	Current practices around childbirth
Medications at the time of childbirth	Medications at the time of childbirth
Types of health care providers in the village/community and their role	Beliefs around PPH, bleeding
Perception towards AMWs by the community and health care providers and AMWs themselves	Oxytocin current practices
Expectation of the services provided by AMWs	Perspective toward inhaled oxytocin
Task shifting possibilities	Implementation strategy
Challenges of providing services	
Opinions on AMW program	

Quantitative research study

The quantitative data collection forms were checked for completeness and inconsistency on the same day by a different data collector. There were no missing data. Coded data were double entered into the software Epi Data version 3.1 by two research assistants. Double data entry was then checked for consistency by me and any discrepancies addressed through discussion with the research team. I analysed the data using STATA version 13.1.

Binary and categorical variables were summarised by proportions and tabulations. Continuous variables were summarised using means, standard deviations (SDs), and ranges. Differences between groups were assessed using chi-squared tests and/or univariable logistic regression with 95% confidence intervals. The effect of each of the independent variables was adjusted for all other independent variables in a multivariable logistic regression model. Variables were included in the model if they were known or hypothesised determinants of our outcomes of interest.

3.5 Research ethics

The AMW task shifting study was approved by both the Ethics Review Committee of Department of Medical Research, Ministry of Health, Myanmar (approval number 42A/ethics/DMR/2015) and The Alfred Hospital Human Research Ethics Committee, Australia (approval number Project 150/15). The inhaled oxytocin study was approved by the Alfred Hospital Ethics Committee, Australia (Project 153/15), the Monash University Human Research Ethics Committee, Australia (CF15/1701 – 2015000854) and the Ethical Review Committee on Medical Research Involving Human Subjects, Department of Medical Research, Myanmar (48/ Ethics/DMR/ 2015).

Written information about the study was given to participants in Burmese and written informed consent was obtained. Consent forms were stored in a secure location. All activities and procedures including those for data collection, data storage and data analysis were performed in accordance with the guidelines and regulations as stated in the study protocol.

I carried out all the qualitative interviews apart from three FGDs for the AMW study and two FGDs for the inhaled oxytocin study. An explanation of the research process was

given and permission to record and take notes was obtained at the beginning of each interview and FGD. Participants were assured that their names and identifying details would be excluded from the study report.

Interviews and FGDs were recorded using a Sony digital recorder, and on the day of each interview or FGD, the voice recording was copied to a computer and a separate digital storage device. The recordings were stored on a computer that was password protected and only accessible to me. The research assistant who assisted with the translation and transcribing had access to the digital recorder, which was returned once transcription was complete.

Transcription of the Myanmar interviews was completed within four weeks of data collection. All the transcripts were checked against the recording by the principal investigator. Translation of the interviews for two studies took more than three months, and was performed by AMW study researchers. For the inhaled oxytocin study, a professional translator was employed and I checked all translations against the Myanmar in order to ensure that the English translation captured the responses in Myanmar language accurately.

Chapter Four: Role of AMWs in hard-to-reach areas of Myanmar

4.1 Introduction to Chapter Four

AMWs have been serving as volunteer health workers in Myanmar since 1978. Their intermediary role within the health system providing promotive, preventive and childbirth care in the rural hard-to-reach areas has never been explored. This chapter aims to determine the understanding and expectations that health workers and community members have regarding the role, responsibilities and practices of AMWs in one rural area of Myanmar.

A qualitative study has been conducted involving 123 participants in 15 FGDs and 10 KIIs with AMWs, Midwives, mothers, community members and health care providers from various level of the health system. The analysis mainly focused on the relationships and expectation of the role of AMWs from the provider, community and AMWs themselves within the community and the health care system.

This chapter consists of the following article, which is under review in BMC Public Health:

Kyu Kyu Than, Stanley Luchters, Khaing Nwe Tin, Thazin La, James Beeson, Alison Morgan "In the middle: a qualitative study of the role of Auxiliary Midwives in a hard to reach area of Myanmar" submitted on 9 January, 2018.

In the middle: a qualitative study of the role of auxiliary midwives in a hard to reach area of Myanmar

Kyu Kyu Than, Stanley Luchters, Khaing Nwe Tin, Thazin La, James G Beeson,

Alison Morgan

BMC Public Health. Submitted on 9 Jan, 2018.

4.2 Abstract

Background: Auxiliary Midwives (AMWs) are unpaid volunteer health workers assisting qualified paid midwives in maternal and child health care mainly in hard-to-reach areas of Myanmar. This paper describes the relationship between AMWs and the health system in providing maternal and child services as perceived by the community, AMWs themselves and health providers in one remote township of Myanmar.

Method: A qualitative study was conducted in Ngape Township, Myanmar. A total of 15 focus group discussions with midwives, AMWs, community members and mothers were conducted. Ten key informant interviews were performed with national, district and township level health planners and implementers of maternal and child health services. Thematic analysis was done using the ATLAS TI software.

Results: AMWs occupy a unique position between the community and the health sector in the study township. The relationship and trust with the community is built upon prolonged presence providing health care, skill building and fulfilling community expectations. Health care provider's expectation to provide only preventive, promotive and childbirth care often exceeds in reality when emergency occurs in hard-to-reach areas. This challenge to handle emergency situations with no support infrastructure and limited skills is considered as most

difficult by the AMWs. Although there are mismatched expectations by the community and health care providers, AMWs are highly accepted and appreciated for their service especially in the hard-to-reach communities.

Conclusion: The trust and relationship developed by AMWs over four decades of community practice serving as the mediator role need to be acknowledged and utilize as a strength in conducting future community based maternal and child health interventions in Myanmar.

4.3 Introduction

The re-emergence of the role of community health workers in maternal and newborn health has been an integral strategy to combat the human resource crisis in many low and middle income countries.(48, 84, 179) The services they provide have reduced childhood undernutrition, expanded access to family-planning services and improved maternal and child health.(84, 180) Community health workers vary in their roles, titles, duration of training, means of remuneration and the level of acceptance and inclusion within different health systems.(48) In general, community health workers are people selected from the community to carry out specific tasks related to health care delivery within the community and usually receive some training related to these tasks. They usually have a basic level of schooling and do not have formal professional or paraprofessional training.(48, 84, 151)

Myanmar has a large human resources for health deficit, with just 1.33 health workers (doctors, nurses and midwives) per 1,000 people.(61, 66) As 70 percent of its population lives in rural areas where homebirths are common, community health workers

such as Auxiliary Midwives (AMWs) and Traditional Birth Attendants (TBAs) have played an important role in maternal and child health.(68, 181, 182)

AMWs are unpaid voluntary health workers trained for six months (3 months of theory and three months of practice). AMWs have been part of Myanmar's health system since 1978, when the program reflected the commitment to the primary health care movement.(72) The aim of training and deploying AMWs was to assign them in villages where there are no qualified paid midwives (MWs) and to replace the TBAs who are considered unskilled health workers. AMWs are selected from the communities through selection criteria which include education and work commitment. Following the six month training period, they provide antenatal care, nutrition education, breast feeding information and support, counselling, and post-natal care to mothers and newborns within their local area. They are also trained to conduct normal deliveries and identify risks and complications for timely referral.(72, 182) At present, there are over 30,000 AMWs serving in the rural villages of Myanmar.(35)

Myanmar's government has renewed interest in optimising the role of AMWs for rural health development, by expanding the role of existing AMWs. The World Health Organization (WHO) has also recommended a range of competencies and practices that can be implemented by AMWs.(183) However studies have demonstrated that implementing effective interventions successfully requires an understanding of the relationship and trust between health worker, community and the health system in which the intervention aims to take place. (184, 185)Others studies on AMWs in Myanmar reported that AMWs' knowledge and skills are low and of concern (1, 74, 76) and training and supervisions are also identified as weak and inadequate.(1, 2) However, after 40 years of investment in AMWs, the

intermediary position of AMWs in the complex health system of Myanmar has never been taken into account. This study aimed to describe the relationship between AMWs and the health system in providing maternal and child services as perceived by the community, AMWs themselves and other health providers in one hard-to-reach area of Myanmar, to provide the contextual understanding for optimising their role.

4.4 Methods

The study was part of a larger study looking at optimizing the role of AMWs in task shifting maternal and child health interventions and the methods have been reported in separate publications.(2, 175) The method in brief is as follows.

The qualitative inquiry was conducted in Ngape Township (an administrative subdivision of a district) in Myanmar. Ngape Township was purposefully chosen because it is a hard-to-reach township, some 16 hours' drive from Yangon. Ngape Township has an estimated population of 46,572 and has one 25 bedded township hospital with 12 medical staff, one 16 bedded station hospital with five medical staff and three rural health centres which provide out-patient care to the community with four basic health workers in each centre.

The consolidated criteria for reporting qualitative research (COREQ) checklist was used to report the methods and findings of the study.(186)

The research team consisted of one experienced qualitative researcher who conducted all interviews and focus group discussions, and four research assistants involved in note-taking and transcribing the audiotapes. The research team participated in three-day

training on the background and rationale of the study, its objectives, ethical considerations and on strengthening certain qualitative research techniques more specifically.

The topics covered in the interviews and focus group discussions in relation to the present paper were as follows (Table 13).

Table 13: Topics and Themes explored in FGDs and Interviews

Topics	**Emerging themes in the interview**
Perceptions of health care providers (How do the health care providers perceive the role of AMWs in the health system)	Relationship and trust (relationship and trust between providers and AMWs in the health system)
	Expectations (role and performance expectation from AMWs by the system/providers)
Perceptions of the community (How do the mothers and the community perceive the role of AMWs in providing care for them)	Relationship and trust (relationship and trust between mothers, community and AMWs)
	Expectations (role and performance expectation of AMWs by mothers/community)
Perceptions of being an AMW (Self-reflection of being an AMW including positive and negative outlook and difficulties encountered)	Relationship and trust (relationship and trust between AMWs and mothers, community, MWs, TBAs and the township health people)
	Expectations (role and performance expectation towards AMWs by the community, MWs and township health people)

Five advocacy meetings were undertaken with the district and township level authorities before data were collected. A total of ten key informant interviews (KIIs) were conducted (three national level health planners, five district and township level health planners and implementers, and two from the 3 Millennium Development Goal (3MDG) fund who were involved in maternal and child health program implementation). National level is the key decision making level of the health system. District level health departments provide supervisory and technical support to the township level and guide the process of AMW recruitment, supervision, training and decision making towards AMW roles and tasks. Township level health departments manage the township health system which is the backbone of primary health care, provides comprehensive health services at the local level and is predominantly responsible for management of the AMW activities(58). Moreover, 15 Focus Group Discussions (FGDs) with MWs, AMWs, community members and mothers of children under the age of three years were undertaken from both hard-to-reach and non-hard-to-reach areas as the main dimension for sampling (Table 14). Each FGD consisted of between five and twelve participants. FGDs with MWs were conducted in the township hospital and all other FGDs in community gathering places of the respective villages and the office of an international non-government organization (NGO) in Ngape Township to ensure confidentiality and privacy. All the individual interviews were done in private places chosen by the interviewees, and were mostly carried out in the offices of interviewees.

Table 14: Overview of study participants of the focus group discussions and in-depth interviews			
Category	**Number of FGDs**	**Total number of participants**	**Characteristics**
Auxiliary Midwives (AMWs)	5	33	• AMWs from hard-to-reach villages with service year more than 5 years • AMWs from hard-to-reach villages with mix service years • AMWs from non-hard-to reach villages with service year less than 5 years • AMWs from non-hard-to-reach villages with service year more than 5 years • AMWs from non-hard to reach village with mix of service years
Midwives (MWs)	2	15	One with MWs assigned in hard to reach area and one with MWs assigned in non-hard to reach areas.
Mothers with children under three years of age	4	29	Two with mothers from hard to reach areas and two with mothers from non-hard to reach areas
Community members	4	36	Two with community members from hard to reach areas Two with community members from non-hard to reach areas
Key informants	-	10	Three national level, five district and township level and two from Three MDG fund

All the FGDs were audio recorded with written informed consent from the participants. Three interviewees refused to be audio recorded; all other KIIs were audio recorded. Note taking was done for all the KIIs and FGDs. All audio recordings were transcribed verbatim in Myanmar language from the digital recorders by the note takers and checked against field notes for consistency. The durations of the FGDs and KIIs ranged from 30 minutes to 90 minutes with an average duration of 50 minutes. Before the actual coding, all transcripts were read and reread by the principal author in Myanmar language and by the data coders. Data coding was done using the ATLAS.ti software. Two members of the research team were directly involved in coding the transcripts. Reliability coding was set at 80 percent agreement and the inter-coder reliability was found to be over 80 percent. The

primary coding structure was developed using the primary topic domains (roles, responsibilities and perceptions of the function of AMWs) and sub themes were identified after a thorough familiarisation with the transcripts. Participant characteristics (key informants, MWs, AMWs, mothers and community members) were also considered during the coding. Before finalising the code structure, the two researchers who coded the transcripts reviewed the coding structure and agreed on the final version. Thematic analysis was done using both inductive and deductive approaches.

4.5 Findings

AMWs' unique position and the relationship within the community and the township health system were discussed from health care providers' perspectives, community perspectives and AMWs themselves.

Providers' perception of AMWs

All health planners and MWs endorsed the critical role of AMWs in remote and hard-to-reach settings, and as the repository for important local community knowledge. AMWs are considered by the health care providers who participated in the study as a necessary cadre for the health system, especially in the hard-to-reach areas where government appointed health workers were not able to go.

"As long as MWs are not fully appointed we will always need AMWs. For the remote areas, it is a wise decision to have the AMWs as a helping hand" (District level key informant)

MWs, who are the immediate supervisors of AMWs, stated that building good relationships with AMWs was a necessity in reaching service to the hard-to-reach villages. AMWs were considered as the best persons with the local knowledge to help MWs

conducting community health care activities. One MW who was assigned in the hard-to-reach area expressed about the assistance of AMW in carrying out her daily activities.

"we need good relationship with the AMWs because they are the local people who know the villagers and help us in our daily activities" (MW from hard-to-reach)

Rapport was built by acknowledging AMWs' activities. MWs believed that this was important in ensuring the ongoing engagement and commitment of the AMWs given their volunteer status.

"We persuade them. You are volunteers and you do good things for your village. We have to tell them their good points" (MW from non-hard to reach)

Providers' expectations of AMWs' role

Expectations by health care providers in the study of what AMWs should be responsible for varied. Many stated that they expect AMWs to do preventive and promotive care but they also mentioned that AMWs need to know how to perform life-saving interventions before referring the patient to the hospital. One MW who faced difficulty in bringing a mother with complication herself stated that,

"There will be benefit if they know how to put an IV [intravenous injection] *drip line. I think we should teach AMWs in hilly villages. So, there is someone who can take care of mothers if something happen in an emergency"* (MW from non-hard-to-reach)

At the same time, there are different opinions about the AMWs' responsibility. One key informant expressed his concern that AMWs were practicing beyond their competencies without fear of the consequences.

"Their main role is to assist the MWs in her routine activities like immunization and assist at normal deliveries and refer risk cases. However, in some of the areas they are giving injection and delivering high risk cases" (Township key informant)

National and District level key informants mentioned the role of Township Medical Officers (TMOs) in imparting and maintaining expectations and norms for AMWs. TMO is the responsible person for making decision at township level. All volunteer recruitment and training are under the supervision of TMO and the decision and support given by the TMO is of utmost importance for the AMWs.

"It depends on the relationship and leadership of the TMO. If the TMO is strong and can control the MWs and the AMWs, the township is under control. If the TMO is weak and

cannot make firm decisions the township becomes hectic and creates problems." (District key informant)

Community perceptions of AMWs

Community members perceived the AMW as a valuable member of the community. Many of the mothers and community members spoke about the good relationship they had with AMWs who have been in their villages all their lives. Notably there were no practicing TBAs in villages where there were experienced AMWs. Trust and confidence was related to prolonged presence as well as the perception of AMW competencies and skills.

"Everyone in the village rely on her [AMW] *as she is very skilful and understanding…she is like a family member, she stays with us all night ….when my son was born and she did not sleep at all..."* (Mother from non-hard-to-reach)

However, villagers from the hard-to-reach village in which there was a newly appointed AMW (trained in 2015) expressed their concern about her capability in assisting at childbirth; comparing her to the traditional birth attendants and the old experienced AMW who had served them for a long time.

"…the previous AMW could do everything, assisting at the birth of children and giving injections and she was very skilful, now she has moved to Thailand, so we have to give birth with the traditional birth attendant….she (new AMW) is not experienced yet….just finished training" (Community member from hard-to-reach)

They also mentioned that time will be needed to build the skills of young AMWs.

"She will need about three years to get the skills and confidence" (Community member from hard-to-reach)

Because of the prolonged presence and the services provided, some of the older community members in the interviews were confused between an AMW and a MW. They trusted and rely on AMWs and described her as their own skilled persons who take care of their health.

"We have our own Sayarma [General name used for a MW in Myanmar Language] *for so long and she is so skilful, we trust her and everyone relies on her ….just recently there is a government appointed one in the nearby village…but we like and trust our own better*" (community member from non-hard-to-reach)

Community and mothers in particular considered that AMWs have good relationship with the MWs and whenever health activities are carried out in the village, the AMWs were considered as a primary communicator and speaker for the village.

"She is the main health person for the village… she helps the MWs in immunization and she also can connect her (MW) when we need them (MWs)" (mother from hard-to-reach)

Community expectations of AMW role

In one of the hard to reach villages, there is a TBA who still conducts deliveries as well as a young newly trained AMW. The main difference expected by the community between an AMW and a TBA was that AMW would be able to provide injection medications.

"They [AMW and TBA] *both can help child birth…but AMWs can provide injection and are more educated"* (community member from hard-to-reach)

In this village, the newly trained AMW who does not provide any injections was mentioned by the villagers as unsatisfying. They mentioned that they wanted a MW instead

of an AMW who could provide injections and do everything necessary for the mothers and their community.

"She is inexperienced as she is young, so we give birth with a TBA and when we ask for injections she said she doesn't do it" (mother from hard-to-reach)

Although the government has trained AMWs to assist MWs in maternal and child health activities, many of the community members in the hard-to-reach areas expected more from the AMWs than they were able to offer. They expected an AMW to be a skilled birth attendant who could provide all health care services equivalent to a MW. Many community members want AMWs to make less referrals and to give more injections. In spite of the restriction on injection practice by AMWs from the government, many of the mothers and the community expressed their demand for injections without being aware of the restrictions.

"She went to training for so long and she is still reluctant to give the injection. We sent her to be like a MW, who could do all" (community member from hard-to-reach)

Many of the community members highlighted the cost related to service provision and AMWs are considered as persons who provide affordable care compared to the MWs.

"She (AMWs) knows our situation in and out and we can pay her when we have it and sometime we just show our appreciation by giving rice and food but we can't do that to MWs, we need money to pay for her (MW) service" (community member from non-hard-to-reach)

AMWs' perceptions of the health care providers and the community

Relationship and trust with the providers and community

AMWs in the study mentioned that relationship and trust are built within the community with dedication and time. Many of the older AMWs said that they devoted all their life to this work in which trust was built. Younger AMWs also mentioned that they had to be involved in many of the community activities to gain the trust of the community.

"For an AMW, we must have 3 rules…. we must have 'saydana' [literally meaning compassion]*, 'wathana'* [literally meaning interest] *and 'anitna'* [literally meaning endurance]*"* (AMW from non-hard-to-reach)

However, a few AMWs mentioned that in spite of all the effort in caring for the community the only reward they get back is blame for being a lesser skilled volunteer in the health system.

"Sometime, it is so hard to persuade them [patient and family] *to go to the hospital and to reach there* [hospital] *is so difficult, and hospital staff start scolding us saying 'why did you bring a dead body, you should have brought her alive'."* (AMW from hard-to-reach)

The relationship with the MWs was mostly expressed as positive and attendance at birth with MWs was perceived as helpful and encouraging by most of the AMWs. However, they also mentioned about the difficulty faced by some families in terms of cost for two providers at birth.

"They only want to call one, we told them not to worry about money as both of us delivered her. We do not ask the fee from the poor ones, we just told them to pay for the motorbike

[transport] *cost of Sayarma* [General name used for a MW in Myanmar Language] *and for us we just told them not to worry"* (AMW non-hard-to-reach)

AMWs' response to expectations of others

Although some of the AMWs in the study mentioned that they treated mothers and community members for fever and minor ailments, reluctance was observed when describing the provision of drugs and injections. AMWs in the studied township had mixed feelings regarding what they can do and are allowed to do for the community. Providing curative care in emergency situation was articulated as demand driven.

"The child had a head injury and it was bleeding…..I told the father to go to the hospital, 'how can I go to the hospital, I have no money'…he [the father] *just sat there in my home… not moving….the child is bleeding and I know I need to stop it ….so I stitched his* [the child] *head…. and gave him* [the child] *Anti Tetanus Toxoid injection……."* (An experienced AMW from hard-to-reach)

More experienced AMWs in the study mentioned that in the 1990s when they undertook training, they were expected to learn and provide curative care to the community as there was no skilled provider in or near by their villages.

"…she [MW] *taught me how do give injections and told me that if she is not around I can give….so I give injections"* (experienced AMW in hard-to-reach)

Gatekeeper role of the Township Medical Officers

AMWs in the studied township had mixed feelings regarding their responsibilities and what they are allowed to do was shaped by the township level authority. Many of the AMWs in the FGD mentioned about the different level of permissions and restrictions

rendered by different TMOs concerning their role as AMWs. They were enthusiastic in telling stories about many of the TMOs who have trained and taught them to be who they are today in serving their own village.

"It was safe with him [TMO A]*. We were trained on how to give treatment and injections. He said he will take responsibility. Then we were not scared to treat before sending the patients to the hospital"* (AMW from hard-to-reach)

Comparisons were made between TMOs that participants considered to be strict, and TMOs that participant considered to be cooperative, which influenced their perception of their own role and performance.

"During his time [TMO C]*, I was very depressed because he scolded me and told me to quit as an AMW because he found out that I gave an injection to the poor villager with fever. He was very strict"* (AMW from non-hard-to-reach)

AMWs also expressed their frustration at being in the middle between the health care system and the community in providing curative care. Many participants spoke about the lack of protection and support provided by the township health system. One stated,

"I feel sad sometimes, we get badly scolded if something went wrong, but for the MW they are protected well. When they need us they say we are together with them in the system, when they don't we are volunteers. So we are like salt between the beans. My family told me to quit the job but I have been doing this for more than 10 years and I can't let go" (Experienced AMW hard-to-reach)

4.6 Discussion

This study suggests that trust and relationship building with the community was a function of the length of service of individual AMWs, their perceived skill, affordability, responsiveness to community demands for curative care, and how AMW interact with other health care providers. These findings are similar to other studies in low and middle income countries, where building trusting relationships involves not only the competency of the individual health worker but is also a function of other contextual factors including the outcome of services provided, responsiveness to need, and strong engagement with the community and the health system.(53, 185, 187)

Older AMWs with long service and experience are more trusted and accepted for their skills compared to the younger AMWs who are newly trained and reluctant to provide curative care because of the rules set by the health authorities. It takes time, and in our study this was many years, and experience to build strong relationships and gain the respect of the people that the AMWs want to serve. A study looking at factors influencing productivity and willingness to serve the community by AMWs in Myanmar showed that older AMWs were more confident in taking care of the patient and were more likely to stay in service for more than 5 years.(182) This presents challenges for new AMWs, who, regardless of skill, lack this history. However a study by Calnan and Rowe argued that trusting relationships depended not only upon the length of service but also upon the outcome of the service provided.(188) Consequently the challenge is to build the skills and confidence in the newly trained AMWs. One potential strategy to better address the community expectations is to change AMW training curricula, adding selected curative practices that have been successfully provided by AMWs in the past. Our study highlights the

importance of defining community expectations: either AMWs need to be better skilled and supported to provide selected curative practices, or more effort is required to ensure communities understand the clear boundaries in the AMW roles, to avoid unreasonable treatment demands being made on poorly equipped AMWs.

Our study found that despite the mismatched expectations by the community and health care provider, AMWs are highly accepted and appreciated for their service, especially in the hard-to-reach areas. AMWs are caught between the community, who wants them to be skilled sufficiently to provide emergency care including injections, and the health care providers who provide mixed messages, allowing curative care only for emergency conditions, but without clear guidance. When there is no skilled health care provider due to geographical inaccessibility or other reasons, compounded by limited supervision and easy availability of drugs, AMWs in the hard-to-reach areas maintain and build their relationship and trust with the community through providing both their preventive and childbirth supportive role as well as curative care using injections and treating minor ailments irrespective of the restrictions. A study done in Mozambique, also reported that unrealistic expectations by the community was a function of less accessible health facilities and challenging geography.(179) Our findings also showed that emergency management for mothers during emergency conditions was frightening and daunting for AMWs, not only due to their limited skills, but also due to the distance from health care infrastructure. Curtale et al, reported that although the community health workers in Nepal tried to respond to the community expectations during emergency conditions, their fear and frustration were mentioned due to inadequate skill and training.(189) To ensure that AMWs are protected

from risk taking with limited skills, developing training curricula with skilled based practical training to respond to emergency situation in hard-to-reach areas is recommended.

In this regard, there is evidence that lay maternal health workers with similar educational backgrounds to AMWs in Myanmar, after two years' working experience, have been able to deliver basic emergency obstetric care(190) in internally displaced communities in Eastern Burma/Myanmar through skill based training and team building. However, this project was resource intensive and the sustainability of the approach may require extensive skilled based training curriculum with highly skilled trainers, sufficient supplies and necessary equipment, and a monthly stipend to support the health workers.(190) Other feasible interventions to prevent maternal mortality and morbidity, such as the distribution of misoprostol for prevention of postpartum haemorrhage, monitoring of blood pressure of mothers and treating them with low dose aspirin and providing antibiotics for postpartum sepsis have been shown to be of effective and have recently been proposed as interventions that could be used by AMWs according to the WHO task shifting guidelines recommendations.(43, 175) Both financial and infrastructure resources are needed to build the skills of AMWs in responding to emergency situations including effective referral.

Studies examining the supervision of AMWs by MWs uniformly report that supervision improves the practice of AMWs.(1, 77) The findings from the present study highlight the additional importance of the gate keeper role of Township Medical Officers in shaping the role and performance of AMWs at the implementation level. Any efforts to skill up AMWs need to take into account the township level leadership and governance along with supportive supervision by MWs. Thus skill development of AMWs to match the need of

their positions with skilled based training, necessary equipment's and drugs, supportive supervision are necessary along with strong policy commitment in Myanmar.

Strengths and limitations of the study

Limitations of this study include that it was not able to assess the wider national and district level factors that may contribute to the relationships of AMWs, and the quality of care provided by AMWs at the township level was not assessed. In addition, the findings may have been affected by social acceptability bias of AMWs at the community level as in some hard-to-reach villages they are the only health care provider present. However, the research team attempted to mitigate this by involving different range of participants from both hard-to-reach and non-hard-to-reach villages. Despite these limitations, the study results bring attention to policy makers and a wider research community that AMWs have positive trusting relationships with not only the community but are also embedded within the health system of Myanmar as an essential cadre for maternal and child health in rural areas.

4.7 Conclusion

Our study focused on the relationships of AMWs in hard-to-reach communities in one township of Myanmar. Trust facilitates communication and access to care between community members and the health system and we believe this critical mediator role of AMWs has gone unappreciated to date. As the government of Myanmar introduces selected interventions as part of their task shifting for improved maternal and newborn care, we recommend that the trust that AMWs have developed over four decades of community practice be protected through providing AMWs the required supervision, training and indemnity.

Authors' contributions

KKT contributed to study design, data collection, data analysis and led the first draft and finalization of the manuscript. SL contributed to study design and development of the manuscript. TZL contributed to the data collection and development of the manuscript. JGB and KNT contributed to the design and development of the manuscript. AM contributed to data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

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Chapter Five: Determinants of knowledge of critical danger signs, safe childbirth and immediate newborn care practices among auxiliary midwives

5.1 Introduction to Chapter Five

Chapter four has described that the intermediary role of AMWs within the community and the health system which needs to be considered and utilized as strength for future skill building. With the one AMW in every village policy, numbers of AMWs have increased in the recent years. However knowledge and skill assessment of AMWs have been limited especially focusing on identification of lifesaving danger signs for effective referral which is one of their main responsibilities. This chapter extends on to analyse the knowledge and practice of AMWs regarding danger signs and practices around the time of birth using a quantitative questionnaire survey of 262 AMWs in three hard-to-reach townships in Magwe Division. This chapter assessed the level of knowledge of critical dangers signs and practices of childbirth and newborn care and its determinants.

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Determinants of knowledge of critical danger signs, safe childbirth and immediate newborn care practices among auxiliary midwives: a cross sectional survey in Myanmar

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5.2 Abstract

Objectives: The re-emergence of community-based health workers such as the Auxiliary Midwives (AMWs) in Myanmar, who are local female volunteers, has been an important strategy to address global health workforce shortages. The Myanmar Government recommends one AMW for every village. The aim of this study is to investigate the current knowledge of critical danger signs and practices for safe childbirth and immediate newborn care of AMWs to inform potential task-shifting of additional health care responsibilities.

Methods: A cross-sectional survey was conducted from July 2015 to June 2016 in three hard-to-reach areas in Myanmar. Face-to-face interviews were conducted using a pre-tested questionnaire.

Results: Among 262 AMWs participating in the study, only 8% of AMWs were able to identify at least 80% of 20 critical danger signs. Factors associated with greater knowledge of critical danger signs included older age over 35 years (AOR=2.19, 95%CI=0.99-4.83), having received refresher training within the last year (AOR=2.20, 95%CI=1.21-4.01), and receiving adequate supervision (AOR=5.04, 95%CI=2.74-9.29). Those who employed all six safe childbirth and immediate newborn care practices, were more likely to report greater

knowledge of danger signs (AOR=2.81, 95%CI=1.50-5.26), adequate work supervision (AOR=3.18 95%CI=1.62-6.24) and less education (AOR=0.44, 95%CI=0.23-0.88).

Conclusion: The low level of knowledge of critical danger signs and reported practice for safe childbirth identified suggests an evaluation of the current AMW training and supervision programs needs to be revisited, to ensure that existing practices, including recognition of danger signs, meet quality care standards before new interventions are introduced or new responsibilities given to AMWs.

5.3 Introduction

The re-emergence of the role of community health workers (CHWs) in health care provision has been an asset to the global health workforce.(48) Around the world, different types of CHWs have emerged that are adapted to the need of individual health care systems and country contexts.(83) CHWs are defined as “community members who work almost exclusively in community settings and who serve as connectors between health care consumers and providers to promote health among groups that have traditionally lacked access to adequate care”.(191) Most CHWs working in maternal and child health are women.

Auxiliary Midwives (AMWs) are one of the largest voluntary health cadres in the country and have been trained by the Government of Myanmar since 1978.(72) They are local women with secondary level education who are willing to serve their own community with maternal and child health care service, and who work without financial incentives. The aim of producing AMWs in the early years of the program was twofold: to fill the gap in the availability of skilled birth attendants (midwives) who were not accessible in remote rural villages of the country, and to phase out traditional birth attendants as care providers.

AMWs provide education and counselling to pregnant women on antenatal care, immunization, nutrition, birth preparedness, breastfeeding and postnatal care. They are also equipped with skills to conduct normal deliveries, identify pregnant women with greater risks of complication and facilitate early and timely referral.(72, 192)

Myanmar has a critical shortage in human resources for health; there are only 14 health providers with midwifery skills (doctors, nurses and midwives) per 10,000 persons. This is significantly less than 23 per 10,000 persons recommended by the World Health Organization's to achieve the 80 percent skilled coverage for maternal and child health.(66) Although the Myanmar Government recognizes the need to increase the number of skilled birth attendants and the distribution of midwives, health system resources are lacking and policies to fill and sustain the human resource gap are not currently in place.(39)Task shifting is one possible option to address human resource shortages and the Ministry of Health has revitalised the AMW program to help extend services to "hard-to-reach" areas.(43) The national target set by the Ministry is to have at least one trained AMW in every village by 2016.(39) The Ministry also recommends task shifting evidence based essential interventions to AMWs, to improve the health of mothers and the newborns.(143)

Currently, AMWs training lasts for six months, including three months of theoretical learning and three months of practical skills provided by township health departments. The trainings are conducted under the guidance of the Ministry of Health.(39) Within the current 'Three Millennium Development Goals Fund' (3MDG) for Magwe region, new and refresher trainings have been undertaken in Gangaw, Ngape and Seitphyu townships. Refresher trainings are provided by the township-level team, which consists of the township medical officer, township health nurse and other health staff within each township, and

entails 3-5 days covering the critical topics relevant to AMW practice. AMWs are supervised by the midwives in their township.(193) Typically, a midwife is responsible for overseeing four to six AMWs, and would visit each AMW every month to monitor performance. In practice, it is reported that many midwives are not able to regularly following up the AMWs for whom they are responsible.(34)

Although the number of AMWs has increased, there are few studies on AMW service provision and performance in Myanmar. Two studies conducted by the Department of Health in 2005 and 2011 reported that knowledge was low and that AMW skills were below satisfactory level.(74, 76) The first study included 211 AMWs from 12 townships and the second study included 287 AMWs from four townships.(74) These studies assessed AMWs general maternal and child health knowledge and skills but did not focus on the critical danger signs.

Our study aimed to investigate the level of knowledge and practices specific to lifesaving care for pregnant women and their newborns: recognition of critical danger signs during pregnancy and labour, clean and safe childbirth practices, and immediate newborn care practices. In addition we examined the determinants of knowledge-level to inform future interventions needed to improve the care given by AMWs in Myanmar.

5.4 Methods

Study setting

Myanmar is a country with geographically, culturally and socially diverse communities. Magwe region in central Myanmar and with a population of 3.9 million was purposively selected based on its high reported maternal mortality ratio (344 per 100,000 live births) and infant mortality rate (84 per 1000 livebirths).(7, 194) The region contains

various hard-to-reach populations and in rural remote areas most of birth takes place at home (nationally reported to be 72 per cent).(32) Within each township, villages were identified as hard-to-reach and non-hard-to-reach according to the 3MDG fund criteria (a score of 0-12 is accorded based on travelling time to the nearest facility, mode of travel, transport charges and roads affected by seasonal variation).(195) Three townships in Magwe region (Gangaw, Ngape and Seitphyu) were purposively selected to represent the geographical diversity of the region and because they have high maternal and infant mortality.

Study design and participants

A cross sectional survey using interviewer administered pre-tested questionnaire was conducted between July 2015 to June 2016. A list of practicing AMWs was obtained from the township health departments and checked through discussions with the township medical officer. All practicing AMWs in the three townships were recruited for interviews. AMWs who were not in the township, and those who could not come to the rural health centre (RHC) due to bad weather or having a very young child at the time of the survey, were not able to participate. A total of 262 AMWs participated in the study out of 308 invited to participate (85 percent).

Data collection methods

Data was collected using a pretested semi-structured questionnaire in Myanmar language. Five trained interviewers conducted face-to-face interviews with AMWs after obtaining written, informed consent. Interviewers were not employed by or associated with the health system. Completing the questionnaire took approximately 30 to 45 minutes per interview. The questionnaire consisted of five main sections including: socioeconomic and

demographic characteristics, training and supervision of maternal and child health services, knowledge of risk and danger signs, practice of antenatal, birth, postnatal and newborn care, and barriers and facilitators for provision of services. In order to reduce the recall bias, all the knowledge and practice questions were based on six months period before the data collection. Interviews were conducted in the closest Maternal and Child Health Centre or RHC to each AMWs place of residence. All the participants were reimbursed with the actual cost of travel to the place of interview plus a daily allowance to cover meal costs. (3000 kyats, equivalent to US$2.5)

Data management and analysis

Data were coded on the day of the interview by a different member of the research team, to check for incompleteness and inconsistency. There were no missing data. Coded data were double entered into the software Epi Data version 3.1 by two research assistants separately. Double data entry was then checked for consistency by the principal investigator and any discrepancies addressed through discussion with the research team. The principal investigator analysed the data using STATA version 13.1.

Binary and categorical variables were summarized by proportions and tabulations. Continuous variables were summarized using mean and standard deviation (SD), and range. Differences between groups were assessed using chi-squared tests and/or univariable logistic regression with 95% confidence intervals. The effect of each of the independent variables was adjusted for all other independent variables in a multivariable logistic regression model. Variables were included in the model if they were known, or hypothesized, determinants of our outcomes of interest.

Study measures

Responses to the question "when was the last refresher training received" was coded as "less than a year" if the participant indicated training had been received more recently than 2014 and as "no training or more than 1 year" if refresher training had not been received or received prior to 2014. The number of supervision visits in the last six months and the question on satisfaction of supervision were taken to create the adequate supervision variable as reported by AMWs in the study. The question on "how many times were you supervised in the last 6 months" was categorized as "less than 6 times or no supervision received" and "6 times and more". Another question explored their satisfaction with the received supervision and was asked as: "Are you satisfied with your supervision?" Responses were re-categorized into a binary variable as "satisfied" for responses "very satisfied", "satisfied" and "just satisfied" and into "not satisfied" when responses included "not very satisfied" and "not satisfied at all". A composite variable was constructed to describe the adequacy of supervision. If the number of supervisions was 6 times and more in the last 6 months and the satisfaction question was categorised as satisfied, it was considered as "adequate supervision" and if either the number of supervision was no or less than 6 times or the satisfaction question was categorised as not satisfied than it was considered as "not adequate."

According to the latest AMW manual published in 2015, there are 20 critical danger signs: six in pregnancy, eight in childbirth and postpartum, and six related to newborn care. Knowing critical danger signs is important to enable AMWs to refer mothers and newborns for timely and effective management of complications. Participants were coded as "high knowledge" if they reported at least three pregnancy critical danger signs (out of six), four

childbirth and postpartum critical danger signs (out of eight) and three newborn critical danger signs (out of six). All others participants were coded as “low knowledge”.

A safe childbirth practice variable was constructed using responses to questions on usage of a clean birth kit and postpartum haemorrhage prevention practices. The question “Do you normally use a clean birth kit” was coded as “1” for yes and “0” for no. Frequency of Active Management of Third Stage of Labour (AMTSL) practices were coded into a binary variable grouping those who responded “always”, “mostly” or “about half the time” as “1”, and those who responded “sometimes” or “rarely” as “0”. A composite “safe childbirth practice” score was then constructed by adding the value of these two variables (using a clean birth kit, and practicing AMTSL). A score of “2” was considered “safe childbirth practice” and scores of ‘0’ or “1” was considered “not safe childbirth practice”. AMWs were also asked about the use of misoprostol, an intervention introduced to AMW practice in the study townships in 2015 by the Ministry of Health.

Four immediate newborn care practice questions were given a score of 1 for “yes” responses and 0 for “no” responses. Practices assessed were: wrapping the baby for warmth; immediate breast feeding after birth; clean cord care; and wiping the newborns nose and mouth with a clean cloth or gauze. AMWs who reported all four immediate newborn care practices were categorized as providing “satisfactory newborn practices”, while all others were categorised as “not satisfactory”. AMWs categorised as providing both safe childbirth practices and satisfactory immediate newborn practice were described as providing “safe childbirth and immediate newborn care practice”.

Ethical considerations

Ethical approval for the study was obtained from the Ethics Review Committee of Department of Medical Research, Ministry of Health Myanmar (approval number 42A/ethics/DMR/2015). Ethical approval was also obtained from The Alfred Hospital Human Research Ethics Committee in Australia (approval number Project 150/15). Written information was provided in Burmese and written inform consent was obtained. Consent forms were stored in a secure location. All activities and procedures including those for data collection, data storage and data analysis were performed in accordance with the guidelines and regulations as stated in the study protocol.

5.5 Results

Characteristics of participants

A total of 214 AMWs from the non-hard-to-reach villages and 48 AMWs from hard-to-reach villages participated in the survey (Table 15). The majority (82%) of AMWs lived in the villages where they were born (native village) and 49% had worked as AMWs for 10 years or more. The mean age of AMWs was 32 years, and 42% had secondary and below education and 16% had university level of education. Forty five percent of AMWs in the study worked in other jobs in addition to being an AMW.

Table 15: Socio-demographic characteristics of participating auxiliary midwives (AMWs)		
Variables	**n (N=262)**	**Percent (%)**
Townships		
Gangaw	67	25.5
Ngape	86	32.8
Seit-phyu	109	41.6
Villages		
Hard-to-reach	48	18.3
Non hard-to-reach	214	81.7
Age		
≤ 24 years	69	26.3
25 to 34 years	105	40.1
35 to 44 years	52	19.9
≥ 45 years	36	13.7
Education		
Primary	26	9.9
Secondary	83	31.7
High School	110	42.0
University/Graduate	43	16.4
Marital status		
Single	132	50.4
Married	130	49.6
Number of years lived in the village		
≤10 years	15	5.7
11-20 years	33	12.6
≥ 21 years	214	81.7
Number of years working as an AMW		
≤1year	23	8.8
2 to 5 years	89	34.0
6 to 9 years	22	8.4
≥ 10 years	128	48.9
Any other job apart from AMW work		
AMW only	148	56.5
Manual labour	8	3.1
Farmers	64	24.4
Small Business owners	37	14.1
Others	5	1.9

Supervision and training

All AMWs in the study were trained for 6 months within their respective townships. More than half (57%) had been trained before 2010 and 64% of the AMWs reported receiving some refresher training (Table 16). Among those who had received refresher training, 80% received the refresher training only in 2015. Seventy per cent reported receiving supervision from a midwife six or more times within the last six months and 60% of these AMWs reported that this supervision was satisfactory.

Table 16: Training and supervision received by participating auxiliary midwives (AMWs)		
Variables	**n (N=262)**	**Percent (%)**
Year of first AMW training received		
1978-1999	75	28.6
2000-2009	75	28.6
2010-2015	112	42.8
Ever received refresher training		
Yes	169	64.5
No	93	35.5
Refresher training within one year		
No refresher training	93	35.5
One year and more	32	12.2
Less than one year	137	52.3
Number of supervision received within 6 months		
Less than 6 times	77	29.4
6 times and more	185	70.6
Reported satisfaction of supervision		
Not satisfied	74	28.2
Satisfied	188	71.8
Adequate supervision*		
Not adequate	124	47.3
Adequate	138	52.7

* "Adequate supervision" was defined as receiving supervision 6 times or more within the last six months and was satisfied with the supervision received

Nearly all AMWs (91%) knew the recommendation of four antenatal visits with a skilled attendant during pregnancy and 96% knew the recommendation of three postnatal visits within 14 days of birth. Regarding critical danger signs, AMWs were more knowledgeable about newborn (77%) compared to antenatal (58%), and birth and postnatal critical danger signs (54%) (Table 17). During the antenatal period, vaginal bleeding, convulsions/fits and severe headache with blurred vision were the most frequently reported critical danger signs. During childbirth and postpartum, the most commonly reported danger signs were bleeding, placenta not expelled one hour after birth of the baby and convulsions/fits. Severe abdominal pain, fast and difficult breathing, fever and too weak to get out of bed were the least reported. Although knowing all 20 critical danger signs is an expected AMW competency, only 8% of participants knew 80% or more of these danger signs and only 34% of participants knew at least half of the critical danger signs in each category.

Table 17: Knowledge of critical danger signs* for pregnancy, birth, postpartum and newborn care among participating auxiliary midwives (AMWs)		
Knowledge of critical danger signs	**n (N=262)**	**Percent (%)**
Pregnancy (6 items)		
Vaginal bleeding	214	81.6
Convulsion/ fits	152	58.0
Severe headache with blurred vision	152	58.0
Fever and too weak to get out of bed	134	51.2
Severe abdominal pain	62	23.7
Fast and difficult breathing	63	24.1
Knowing 3 or more critical danger signs during pregnancy	**151**	**57.6**
Childbirth and postpartum (8 items)		
Not in labour within 6 hours of water breaking	141	53.8
Labour pain (contractions) continue for more than 12 hours	105	40.1
Heavy bleeding after childbirth (pad/cloth soaked in less than 5 minutes)	116	44.3
Bleeding increases	189	72.1
Placenta not expelled 1 hour after the birth of the baby (retained placenta)	152	58.0
Convulsion/fits	156	59.5
Fast and difficulty breathing	51	19.5
Fever and too weak to get out of bed	52	19.9
Knowing 4 or more critical danger signs during birth and postpartum	**142**	**54.2**
Newborn (6 items)		
Difficult breathing (over 60/minutes or less than 30/minute)	183	69.9
Fits or convulsions	156	59.5
Fever	161	61.5
Feels cold (cold body temperature)	117	44.7
Bleeding from umbilicus or pus and redness around the umbilicus	202	77.1
Poor or no response to breast feeding	172	65.7
Knowing 3 or more critical danger signs in newborns	**202**	**77.1**
AMWs who showed consistent high knowledge of critical danger signs (at least 3 danger signs in antenatal and 4 in childbirth and postpartum and 3 in new born periods)	**89**	**34.0**

*As defined in the 2015 Myanmar AMW manual

Safe childbirth and immediate newborn care practice

The main tasks of AMWs are to perform normal deliveries, and to identify and refer high-risk pregnancies and women and newborn showing danger signs to the nearest health facility. On average, AMWs in this study provided antenatal services to four pregnant women, childbirth services to two women, and postnatal services to four women in the past six months. Although labour monitoring using partograph was included in the AMW manual, and is widely recommended as an important tool for the management of labour, only one respondent answered "yes" to ever using a partograph. In this study, 84% of AMWs reported normally using a clean birth kit (Table 18). Eighty percent of AMWs self-reported actively managing the third stage of labour (AMTSL). However, only 41% of AMWs reported providing misoprostol after birth to prevent postpartum haemorrhage. Among those who used misoprostol, 75% used two tablets and 25% used only one tablet (compared with the recommended three tablet dosage). Only 31% of AMWs followed all four immediate newborn care practices for a normal birth. All six practices of safe childbirth and immediate newborn care practices were conducted by only 74 (28%) of AMWs in the study (Table 4).

Table 18: Proportion of AMWs reporting specified childbirth and newborn care practices

Reported practices	**n**	**Percentage**
Childbirth practices (2 items)		
Use a clean birth kit	219	83.6
Perform Active Management of Third Stage of Labour (AMTSL)	216	82.4
Performing both practices for clean and safe childbirth	**209**	**79.8**
Immediate new born care practices (4 items)		
Warming (wrapping the baby to keep warm)	222	84.7
Breast feeding at once (immediately)	181	69.1
Clean cord care	152	58.0
Wipe nose, mouth of new-born with clean cloth or gauze	191	72.8
Performing all the immediate new born care practices	**81**	**30.9**
AMWs who reported practicing 6 safe and clean childbirth and immediate new born care practices	**74**	**28.2**

Determinants of high knowledge of critical danger signs

Using multiple logistic regression analysis and after adjusting for confounders, variables that were strongly associated with high knowledge of critical danger signs were age 35 years and over, receiving refresher training within one year and adequate supervision. AMWs that are older (35 years and over) were 2.19 times more likely to have higher knowledge of critical danger signs compared to AMWs aged less than 35 years (*P*=0.054). AMWs who had received refresher training within one year were 2.20 times more likely to have better knowledge of the critical danger signs than those who had received no training within the previous year (*P*=0.010). AMWs who reported adequate supervision were 5.04 times more likely to have higher knowledge of the critical danger signs compared to those who did not receive adequate supervision (*P*<0.001) (Table 19).

Determinants of safe childbirth and immediate newborn care practice

Multiple logistic regression reveals that having high knowledge of critical danger signs and reported adequate supervision were positively associated with practicing clean and safe childbirth and immediate newborn care (Table 20). AMWs with high knowledge of the critical danger signs were 2.81 times more likely to report safe childbirth practice and immediate newborn care compared to those who had low knowledge (P=0.001). AMWs who reported that they had adequate supervision were 3.18 times more likely to practice safe childbirth and immediate newborn care compared to those who reported that they had no adequate supervision (P=0.001). AMWs with secondary level education or above were 56% less likely to report safe childbirth practice and immediate newborn care practices compared to those without secondary level of education (P=0.019).

Table 19: Determinants of consistent high knowledge of critical danger signs among 262 enrolled AMWs in Myanmar

Variables	Proportion with consistent high knowledge of critical danger signs (%, n/N)	Odds Ratio, (95%CI)	Adjusted Odds Ratio, (95%CI)	*P*-value
Socio-demographic characteristics				
Villages				
Hard-to-reach	13/48(27.1)	1.00	1.00	
Non hard-to-reach	76/214(35.5)	1.48(0.74-2.98)	1.08(0.50-2.34)	0.84
Age				
< 35 years	53/174(30.5)	1.00	1.00	
≥ 35 years	36/88(40.9)	1.58(0.92-2.71)	2.19(0.99-4.87)	**0.054**
Education				
Secondary and below	35/109(32.1)	1.00	1.00	
Above secondary	54/153(35.3)	1.15(0.68-1.94)	1.10(0.59-2.08)	0.76
Marital status				
Single	42/132(31.8)	1.00	1.00	
Married	47/130(36.2)	1.21(0.73-2.03)	1.06(0.57-2.02)	0.84
Number of years working as an AMW				
< 10 years	41/134(30.6)	1.00	1.00	
≥ 10 years	48/128(37.5)	1.36(0.81-2.28)	0.61(0.25-1.46)	0.27
Any other job apart from AMW work				
AMW only	52/148(35.1)	1.00	1.00	
Additional job	37/114(32.5)	0.89(0.53-1.49)	0.68(0.39-1.21)	0.20
Training and supervision characteristics				
Refresher training				
No or one year and more	33/125(26.4)	1.00	1.00	
Less than one year	56/137(40.9)	1.93(1.13-3.28)	2.20(1.21-4.01)	**0.010**
Adequate supervision				
Not adequate	22/124(17.7)	1.00	1.00	
Adequate	67/138(48.6)	4.38(2.39-7.99)	5.04(2.74-9.29)	**<0.001**

Table 20: Determinants of practice of childbirth and immediate new born care practices of 262 AMWs enrolled in the study				
Variables	**Proportion of AMWs with all 6 practices of safe and clean childbirth and new born care practice (n/N)**	**Odds Ratio, (95%CI)**	**Adjusted Odds Ratio, (95%CI)**	***P*-value**
Socio-demographic characteristics				
Villages				
Hard-to-reach	10/48(20.8)	1.00	1.00	
Non hard-to-reach	64/214(29.9)	1.62(0.76-3.46)	1.20(0.51-2.82)	0.67
Age				
< 35 years	47/174(27.0)	1.00	1.00	
≥ 35 years	27/88(30.7)	1.20(0.68-2.10)	1.16(0.50-2.68)	0.72
Education				**0.019**
Secondary and below	38/109(34.9)	1.00	1.00	
Above secondary	36/153(23.5)	0.57(0.33-0.99)	0.44(0.23-0.88)	
Marital status				
Single	39/132(29.6)	1.00	1.00	
Married	35/130(26.9)	0.88(0.51-1.51)	0.66(0.33-1.32)	0.24
Number of years working as an AMW				
< 10 years	34/134(25.4)	1.00	1.00	
≥ 10 years	40/128(31.3)	1.33(0.78-2.30)	0.88(0.35-2.24)	0.79
Any other job apart from AMW work				
AMW only	36/148(24.3)	1.00	1.00	
Additional job	38/114(33.3)	1.56(0.90-2.68)	1.53(0.84-2.78)	0.17
Training and supervision characteristics				
Refresher training				
No or one year and more	33/125(26.4)	1.00	1.00	
Less than one year	41/137(29.9)	1.19(0.69-2.05)	1.25(0.66-2.37)	0.50
Adequate supervision				
Not adequate	17/124(13.7)	1.00	1.00	
Adequate	57/138(41.3)	4.43(2.32-8.45)	3.18 (1.62-6.24)	**0.001**
Knowledge of critical danger signs				
Consistent high knowledge of critical danger signs				
No	33/173(19.1)	1.00	1.00	
Yes	41/89(46.1)	3.62(2.01-6.52)	2.81(1.50-5.26)	**0.001**

5.6 Discussion

The knowledge and practices of community health workers are important indicators of the quality of care provided by this cadre of health workers. The present study examined AMWs' knowledge of critical danger signs during pregnancy, childbirth, postpartum and the immediate newborn care period. Recognising critical danger signs is an essential

prerequisite to timely referral of women and newborns to life saving interventions. Our study revealed low knowledge of critical danger signs among AMWs in the study area. This finding is consistent with the findings of a previous study of AMWs' general knowledge including danger signs in four townships of Kyaukse, Myanmar,(76) and is concerning.

In the present study AMWs with higher age (≥35 years) were more than twice as likely to be knowledgeable about critical danger signs compared to the younger age group. However, age was not associated with practice of care. A similar study of female community health workers in rural Nepal also found that women who were older had better knowledge of maternal and child health services.(196) Our findings suggest that knowledge comes with experience and that the training needs to be strengthen to ensure that those newly engaged in the AMW work are appropriately knowledgeable.

Level of formal education was not associated with AMW knowledge in our study, but was inversely associated with provision of practice of care. We found that AMWs with higher than secondary level of education were less likely to report safe childbirth and immediate newborn care practices than those with lower education levels. This could be due to the fact that AMWs with better education are more likely to be involved in other jobs with better financial incentives compared to those AMWs who are less educated. Similar findings have been reported by a previous study on AMW performance in Myanmar, which showed that high education level was negatively associated with good performance.(77) Training is a major determinant of knowledge and practice by community health workers globally.(92) In the present study, receiving refresher training within one year was strongly associated with knowledge of critical danger signs. As some of the AMWs conduct deliveries rarely, and to maintain good knowledge refresher trainings are important. The apparent

success of more recent training (which was based on the new AMW manual) suggests that refresher trainings need to be extended to all AMWs. However, the overall low level of knowledge, even among recently trained AMWs calls for improved AMW training and support relating to the identification of danger signs. In the current AMW manual, extensive information covering a wide range of health topics may result in insufficient emphasis being placed on the more important topics, such as danger signs. Information such as using a partograph to assess the progress of labour is included, despite only one out of 262 participants in our study reporting having ever used a partograph. In terms of the training, the right content and appropriate methodology that suits the trainees is an important factor to be taken into consideration.(197) Therefore, curriculum for training AMWs needs to be revisited and revised to prioritise the most relevant and practical information needed by AMWs.

Supervision is recognised internationally and in Myanmar as important for maintaining or increasing the community health workers' performance and quality of care. Previous studies illustrate that both the frequency of visits and the satisfaction of supervisee are important elements of effective supervision.(48, 92, 198) Our study findings show that supervision is a consistent determinant of both knowledge and practice. AMWs who reported adequate supervision were five times more likely to have higher knowledge on critical danger signs and three times more likely to provide safe childbirth and immediate newborn care practices. To accelerate effective supervision, mechanisms for frequent, quality supervision need to be incorporated into AMW training packages. Although many studies note that supervision is essential, AMWs supervision in Myanmar is low.(34, 76)

A systematic review done by Hill et al. in 2014 found that supportive supervision given by formal health workers motivates community health workers, while also building trust and confidence between the two workers.(198) Similar opportunities to build trust and confidence exist in Myanmar as supervision of AMWs is largely conducted by midwives in the local rural health centre. Although our study was limited to supervision by the immediate supervising midwife, supervision by other level of health care workers and community members has been effective in other settings,(180, 198, 199) and should be explored in the Myanmar context.

The 2006 Lancet series on maternal survival emphasised that the effectiveness of lay health workers programs depend on comprehensive training, considerable supervision and logistical input,(124) along with good planning. It is also well evident that community level health worker programs are not stand alone initiatives, and all effort within the health system must be involved to strengthen the knowledge and skills of AMWs who are the frontline workers of the hard to reach rural areas with innovative and effective training and supervision packages.

There are a number of limitations to the present study. Practices of AMWs were based on self-reported practices rather than actual observed performance, and over-reporting can be a problem with this approach. Our finding of low knowledge and poor practices may therefore still be an underestimate of the size of the problem. As a cross sectional study, the study is not able to determine cause-effect relationships. Creating composite variables for analysis may impose misclassification bias and findings should be interpreted with caution. Despite these limitations, results revealed that adequate supervision and regular refresher trainings are strongly correlated with AMW knowledge

and practice relating to safe childbirth practices and knowledge. These findings suggest that greater investment in training and supervision is warranted.

Myanmar, a country in transition, with a fragile and weak health system, has chosen the path of training AMWs in response to national shortages in human resources for health. This policy is in line with WHO task-shifting recommendations that advocate for training and supporting lay health workers to perform specified tasks often performed by higher-level health cadres in order to improve access to care for hard-to-reach communities.(43) However, our study finds that AMWs currently report low levels of knowledge regarding critical danger signs and poor practices relating to safe childbirth and immediate newborn care. Our findings underscore the need for comprehensive, skills-based training module with close supervision and support mechanism in order to improve the knowledge and skills of AMWs in Myanmar before future task-shifting.

Strengths and limitations of this study

The study presents valuable information on current knowledge of critical danger signs and practices for safe childbirth and immediate newborn care of auxiliary midwives (AMWs) in Myanmar. Practices of AMWs were based on self-reported practices rather than actual observed performance, and over-reporting can be a problem with this approach. Moreover, composite variables were created for analysis, which could have led to misclassification bias.

Low level of knowledge of critical danger signs and reported practices for childbirth suggest an evaluation of the current AMW training and supervision program needs to be revisited to ensure that existing practices, including recognition of danger signs, meet quality care standards.

Authors' contribution

KKT contributed to study design, data collection, data analysis and led the first draft and finalization of the manuscript. AM contributed to data analysis and development of the manuscript. MDP contributed to data analysis and development of the manuscript. JGB contributed to study design and development of the manuscript. SL contributed to study design, data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

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Chapter Six: Task-shifting essential maternal interventions to AMWs

6.1 Introduction to Chapter Six

Chapter six described the role of AMWs in Myanmar according to the AMW manual and compared the tasks of AMWs with the WHO recommended guideline. I also assessed the feasibility and acceptability of task-shifting essential maternal interventions to AMWs using both the qualitative and quantitative data collected for the thesis. The mixed method study allowed me to show the proportions of AMWs that are prescribing medications without any guidelines and the qualitative data allowed me to answer why they are using these drugs.

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The potential of task shifting selected maternal interventions to Auxiliary Midwives in Myanmar: a mixed-method study

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6.2 Abstract

Background: An estimated 282 women die for every 100,000 live births in Myanmar, most due to preventable causes. Auxiliary Midwives (AMWs) in Myanmar are responsible for providing a package of care during pregnancy and childbirth to women in rural hard to reach areas where skilled birth attendants (Midwives) are not accessible. This study aims to examine the role of AMWs in Myanmar and to assess the current practices of three proposed essential maternal interventions (oral supplement distribution to pregnant women; administration of misoprostol to prevent postpartum haemorrhage; management of puerperal sepsis with oral antibiotics) in order to facilitate a formal integration of these tasks to AMWs in Myanmar.

Methods: A mixed methods study was conducted in Magwe Region, Myanmar involving a survey of 262 AMWs, complemented by 15 focus group discussions with midwives (MWs), AMWs, mothers and community members, and 10 key informant interviews with health care providers at different levels within the health care system.

Results: According to current government policy, AMWs are responsible for identifying pregnant women, screening for danger signs and facilitating early referral, provision of counselling on nutrition and birth preparedness for women in hard-to-reach areas. AMWs

also assist at normal deliveries and help MWs provide immunization services. In practice, they also provide oral supplements to pregnant women (84%), provide antibiotics to mothers during the puerperium (43%), and provide misoprostol to prevent postpartum haemorrhage (41%). The current practices of AMWs demonstrate the potential for task shifting on selected essential maternal interventions. However, to integrate these interventions into formal practice they must be complemented with appropriate training, clear guidelines on drug use, systematic recording and reporting, supportive monitoring and supervision and a clear political commitment towards task shifting.

Conclusion: With the current national government's commitment towards one AMW in one village, this study highlights the potential for shifting specific maternal lifesaving tasks to AMWs.

6.3 Background

Health workforce shortages are a major contributor to maternal and newborn morbidity and mortality.(43) According to the 2014 census, Myanmar's maternal mortality ratio was 282 per 100,000 live births with wide variation between urban and rural areas.(7) In Myanmar, there are 14 health care providers per 10,000 persons with the necessary midwifery skills (doctors, nurses and midwives).(66) This is well below the World Health Organization (WHO) recommendation of at least 23 per 10,000 to achieve 80% coverage for skilled health care worker attendance during deliveries.(66, 92)

To address the gap in human resources for health, task shifting has been identified as a promising strategy by WHO to optimize health worker roles to improve access to key maternal and newborn interventions. Task shifting "is a process whereby specific tasks are moved, where appropriate, to health workers with shorter training and fewer

qualifications".(43, 89) Globally, auxiliary health workers such as Myanmar's Auxiliary Midwives (AMWs) are increasingly becoming providers of health services in low and middle income countries and the services they provide have reduced childhood undernutrition, expanded access to family-planning services and improved maternal and child health.(48, 180)

In Myanmar, midwives (MWs) are the primary level health workers within the government health system providing maternal and child health care at the community level. However, MWs are not able to cover all rural villages, where 70 per cent of the population resides.(200) To support MWs to care for mothers and children in hard to reach areas, AMWs are trained and organized by the government.(39, 74) AMWs are unpaid voluntary health workers and have been the largest community level frontline workers serving the mothers and children in rural remote villages since the program commenced in 1978.(72) The Myanmar Ministry of Health and Sports is in the process of developing an essential package of health services for townships (basic health care infrastructure) that will be covered under universal health coverage. With the commitment of the Myanmar's government to investing in rural development and the health workforce skill mix, a policy was developed in 2013 of having an AMW in every village of Myanmar.(39, 66) Nationally, there are currently over 30,000 AMWs serving the country, which has a population of around 51.4 million.(5, 39) According to the WHO task-shifting recommendations, the competencies of auxiliary nurse midwife/auxiliary midwife should encompass 10 tasks as outlined in Table 21. Although the definition which includes secondary level of education and a period of on-the-job training for AMWs is similar to WHO's, AMWs in Myanmar are allowed to conduct only three of the identified tasks. Tasks which involve injection practices

are proscribed for AMWs by Ministry of Health and Sports.(192) Within the allowable competencies, three maternal interventions [oral supplementation to pregnant women, oral antibiotics to treat puerperal sepsis, providing misoprostol for prevention of postpartum haemorrhage (PPH)]were identified for future task shifting by stakeholders (health administrators, policymakers, Non-Government Organizations, professional associations, frontline healthcare providers and researchers) involved in the GREAT (Guideline-driven, Research priorities, Evidence synthesis, Application of evidence, and Transfer of knowledge) network research activity which was carried out in 2014. (167)

However, prior to adding selected tasks to the current work role of AMWs it is important to investigate the current context and understand the practices and perception of the community level actors. The objective of this study is to examine the role of AMWs in Myanmar and to assess the current practices of the three proposed interventions which are not allowed in written policy for the AMWs. We focus on a hard-to-reach area and assess the feasibility of formally integrating these three tasks within AMWs work practices to optimizing their role for maternal health care.

Table 21: Comparison of the competencies of Auxiliary Midwives in Myanmar with the assumed competencies of Auxiliary Nurse Midwives according to WHO recommendation		
Assumed competencies of Auxiliary Nurse Midwives (ANM) within WHO recommendations	**Current Auxiliary Midwives competency in Myanmar**	**Potential competency for Auxiliary Midwives**
Promotion of maternal, newborn and reproductive health interventions	**√**	**√**
Oxytocin administration to prevent and treat PPH – standard syringe/ CPAD	X	Not allowed due to strict restriction on injection
Misoprostol administration to prevent PPH	X	**Possible**
Misoprostol administration to treat PPH	X	After the preventions dose must refer the patient immediately to hospital
Oral supplement distribution to pregnant women	X	**Possible**
Low dose aspirin distribution to pregnant women at high risk of pre-eclampsia/eclampsia	X	After detection of high blood pressure must referred pregnant mothers to the MWs for further care
Continuous support for women during labour, in the presence of a skilled birth attendant	**√**	**√**
Puerperal sepsis management with oral antibiotics	X	**Possible**
Puerperal sepsis management with intramuscular antibiotics – CPAD	X	Not allowed due to strict restriction on injection
Maternal intrapartum care (including labour monitoring, e.g. using a partograph; foetal heart rate monitoring by auscultation; decision to transfer for poor progress; delivery of the baby)	**√**	**√**

*ANM=Auxiliary Nurse Midwives; PPH=Postpartum haemorrhage; CPAD=compact pre-filled auto-disable device; WHO=World Health Organization [Table adapted from the GREAT guideline implementation report for Myanmar, 2014]

6.4 Methods

Study setting

Myanmar has critical resource constraints and faces a major gap in access to, and coverage of, health services in many regions of the country. Magwe region in central Myanmar with a population of 3.9 million was purposively selected based on its highest reported national maternal mortality ratio (344 per 100,000 live births).(7) The region contains a number of hard-to-reach populations and in rural remote areas; most births take

place at home. Three townships in Magwe region (Gangaw, Ngape and Seitphyu) were selected for the quantitative survey to represent the geographical diversity of the region and Ngape township was chosen for the qualitative study as the township has a high rate of births with AMWs compared to other townships in the region.

Study methodology

A mixed methods study design was applied and two previous publications have also reported on the qualitative and quantitative methodology separately.(1, 175) For the qualitative data collection, focus group discussions (FGDs) and key informant interviews (KIIs) were conducted using an interview guide to explore the role of AMWs, attitudes and perception towards AMWs, expectation of the services provided by AMWs and task shifting possibilities. A review of the current manual and micro plan (national plan with detail calculation of how many AMWs would be needed in each state and division, how much cost is needed to train each AMW) for AMWs was conducted. Subsequently, a cross sectional survey of AMWs was carried out using an interviewer administered pre-tested questionnaire, which included the practice of antenatal, birth, postnatal and newborn care practices of AMWs. Results relating to determinants of knowledge of critical danger signs and practices around the time of child birth have been reported in a separate article in which practice of Misoprostol has been mentioned in brief already. (1)

Sampling and recruitment

Purposive sampling was used to collect the qualitative data. A total of ten key informants (three national, two district and three township level health planners and implementers, and two from the Three Millennium Development Goal Fund (3MDG) who were involved in maternal and child health program implementation) were interviewed.

Fifteen FGDs (two with MWs, five with AMWs, four with community members and four with mothers with children under the age of three years) were conducted.

For the quantitative survey, a list of practicing AMWs was obtained from the township health departments and checked through discussions with the township medical officers. All practicing AMWs in the three townships were contacted for interviews.

All the interviews were conducted in Myanmar language after obtaining written informed consent including an explanation of the study objectives and the intended use of information. Participation was voluntary. Interviews were conducted at a convenient location and the participants were reimbursed with the actual cost of travel to the place of interview and provided a daily allowance to cover meal costs (3000 kyats, equivalent to US$2.5). Confidentiality was maintained throughout the study. Four research assistants led by an experienced researcher conducted the interviews after a three-day training of the research methods and the study objectives. Data collection was done from July 2015 to June 2016.

Data management and analysis

Quantitative data were checked for consistency and double data entry was done using the software Epi Data version 3.1. Data were analysed using STATA version 13.1. Binary and categorical variables were summarized by proportions and tabulations. For the qualitative data, all the transcripts were read and reread by the principle author in Myanmar language and all the translated versions of the transcripts were read and reread by the other coders. Transcripts of FGDs were translated into English before coding, while remaining data were coded in Myanmar language using ATLAS ti software. Two data coders coded the transcripts. Reliability coding was set at 80 percent agreement and the inter-

coder reliability was found to be over 80 per cent. The analysis was both inductive and deductive and relevant themes were categorized under the three main themes: perception of the role of AMWs, potential for task shifting responsibility and feasibility of integrating new interventions into the current health system. Quotations were used to support the study findings and to enhance understanding of the local context. Data integration and triangulation was done at the interpretation phase of the study using both quantitative and qualitative data.

6.5 Results

Background characteristics of respondents

A total of 123 people participated in ten key informant interviews and 15 focus group discussions, comprising 15 MWs, 33 AMWs, 29 mothers and 36 community members. The FGDs comprised of 44 (35 women and 9 men) from the hard to reach villages and 69 (61 women and 8 men) from the non-hard to reach villages.

A total of 262 AMWs participated in the quantitative questionnaire survey out of 308 invited to participate (85 percent). Reasons for non-participation included having a young child at home and poor weather preventing travel. In the very hard to reach villages, 77% of the invited AMWs participated. The majority (82%) of AMWs lived in the villages where they were born (native village). The mean age of AMWs was 32 years and mean duration of working as an AMW was 10 years.

AMWs' current role and responsibility

A review of the current AMWs manual (192)showed that AMWs were mainly responsible to identify pregnant women and make sure that the women are connected with the MWs for four antenatal check-ups including two tetanus toxoid injections. Their main

responsibility during pregnancy is to counsel women on healthy eating, danger signs during pregnancy birth preparedness counselling, and early initiation of breast feeding. They are allowed to conduct normal home deliveries, postnatal care and newborn care. They are expected to detect danger signs and promote early referral of women to the MWs, giving first aid care before referral. AMWs conduct health education sessions to the community on nutrition and other locally endemic diseases. Currently they are not allowed to prescribe any medication to pregnant women. They are also responsible for recording and reporting of pregnant women and other cases of disease to the local health authorities (see Table 22).

Table 22: Role and responsibilities of auxiliary midwives

- Expected to identify pregnant mothers as early as possible and give antenatal care within their agreed authority, ideally aiming for at least four antenatal consultations. (AMW need to refer all registered pregnant women routinely as well as when showing danger signs and necessary must refer a pregnant mother (between 20 weeks and 35 weeks gestation) to the rural health centre for necessary investigation and if needed must accompanied the pregnant mother for emergency referral to the hospital)
- AMW should provide health education to pregnant and lactating women to promote healthy eating and prevention of locally endemic diseases to the community in the village.
- To encourage all pregnant mother to prepare thoroughly for delivery with a comprehensive birth plan
- AMW conducts home deliveries, postnatal care and new born care. Must be able to refer high risk cases of mothers and the newborns defined in the AMW manual to the hospital in timely manner
- AMW should provide support to infants through education to mothers on breast feeding practices such as exclusive breast feeding (for six months) and start of supplementary feeding at the age of 6 months.
- Monitor the growth and nutritional status of infants and under five children on a regular basis
- Must provide first aid care in the capacity of her skill and must be able to refer needed cases to the hospital
- Must report unusual diseases to the authority and must record the cases
- Must help and provide assistance to Basic Health Staff in carrying out reproductive health activities.

*AMW=Auxiliary Midwife; [Translated from a Burmese version of Micro plan for auxiliary midwives (2013-2016): Department of Health - Ministry of Health Myanmar, 2013]

Perception of the role of AMWs

The perception of AMWs by the community and health care providers was positive in the study township and they were considered as the main mediators between the community and health care system. All levels of key informants stated that AMWs are essential health care providers serving the community with not only maternal and child health care but also with other health related activities including disease control and environmental sanitation. Health care providers also mentioned that without the existence of AMWs in hard-to-reach areas where MWs are unavailable, the mothers and children would be in the hands of traditional birth attendants and quacks. MWs in the focus group discussions stated that AMWs were a real helping hand for them because they were able to identify pregnant women in the villages and were able to understand the social background and local language of the women in their care.

"If they (AMW) do not exist, patients do not have anyone to rely on especially in the hilly villages. You see when a mother gets in trouble during her pregnancy and if AMWs do not exist and we are out of town, there will be lots of problems" (MW FGD hard-to-reach)

Mothers in the FGDs mentioned that AMWs were the first health care provider they notified of their pregnancy as she is always available. Regular home visits and counselling by AMWs also enhanced the early identification of at risk pregnancies and timely referral. AMWs were also considered as community mobilizers for immunization who make an inclusive list of who is to be immunized. In the hard to reach areas, MWs rely on the AMWs.

"Well….when they find out new pregnant women, they tell us, I give the pregnant woman antenatal care. They can tell us immediately because they are always around in the village regularly, so, they can get information easily and quickly. They help us when we do health

talk sessions and measure babies' weight. Moreover, they call anyone who needs to receive service and they make sure no one misses." (MW FGD non hard-to-reach)

AMWs also conduct normal deliveries in villages where MWs are not present. They are also willing to assist MWs when they conduct deliveries. Post-natal care and psychological support are usually given by AMWs and appreciated by women and their families. AMWs mentioned that serving the community and assisting women in delivery was satisfying. Although they mentioned their role as important, they also expressed their difficulty and devastation of being a voluntary worker without any incentives and payment.

"We are a common slave for the villagers and the health staff. We don't have days and nights and whenever there is an emergency they (villagers and health care providers) remember to call us. Sometime we had to come with our own expanse and eat from out of pocket. No one pays us a penny" (AMW FGD hard-to-reach)

Potential for task shifting responsibilities

MWs in the study mentioned that they had shared some of their practices with AMWs. The main activities MWs shared to AMWs were providing pregnant women with vitamin supplementation (ferrous sulphate, folic acid, vitamin B1 and vitamin A); providing misoprostol for prevention of PPH; and giving antibiotics such as metronidazole and amoxicillin to treat fever and puerperal sepsis. However, all these activities were done on an ad hoc basis with no regulatory processes. MWs mentioned that these task shifting activities were done due to conditional circumstances and the needs of the community. Geographical distance and the relationship between the AMWs and the MWs were articulated as reasons for task shifting. AMWs that live geographically far away and have a better relationship with

the MWs were more likely to be distributing drugs to pregnant mothers compared to those who lived close and were not in a good relationship.

"For those AMWs in far mountain villages who listen to us, we teach them how to use and what amount should be given for what kind of drugs. We tell them how much should be given for adult and for children. We thoroughly tell them" (MW FGD hard-to-reach)

Quantitative findings also showed that AMWs were providing the three proposed interventions in practice: oral supplementation (84%), oral antibiotics to treat puerperal sepsis (43%) and misoprostol to prevent postpartum haemorrhage (41%). It was observed that oral supplementation was the most commonly performed task. This was explained in the qualitative findings by AMWs that oral supplementations were more freely available compared to the antibiotics and misoprostol. Health care providers mentioned that, ferrous sulphate, folic acid and vitamin B1 and A were regularly supplied by the government. AMWs in the FGD described,

"MW usually asks the number of pregnant women. We provide the number and MW gives the medicine (Ferrous sulphate and folic acid) monthly "

The use of antibiotics for various purposes such as fever, flu and cough was a common practice by both the AMWs and the MWs. The most widely used antibiotics during the puerperal period were amoxicillin and metronidazole. Further exploration was made regarding the dosage of use, and it was mentioned that AMWs were instructed by the MWs to give an adult a dose of 500 mg 3 times per day for amoxicillin and 200 mg 3 times per day for 3 to 5 days for metronidazole. Some MWs mentioned that they use their mobile phones to instruct AMWs on how to treat. The main sources of the drugs were from the MWs and

local drug shops. AMWs in the study mentioned that antibiotics can be freely purchased from the local drug stores without need for prescription. A few AMWs in the FGDs mentioned that,

"we usually buy the drugs from the drug store in town and sometime MWs share their drugs if they get a lot from the township" (AMW FGD hard-to-reach)

Township level health care providers said that the use of misoprostol to prevent postpartum haemorrhage was introduced around 2012 in the study townships and many of the MWs in the study articulated that they have instructed and shared their misoprostol to AMWs especially those in hard to reach remote villages. The most common dosage of misoprostol by AMWs was two tablets (totalling 400 micrograms) immediately after the birth of the baby. The detailed description of the perception and use of misoprostol by AMWs have been described in an earlier paper.(175)

MWs mentioned that with thorough explanation and guidance, they could assure that AMWs would be able to distribute the drugs to mothers safely. AMWs were also confident and willing to take on the assigned role if it was given with proper training and guidance. The potential feasibility of the task shifting activities from the qualitative interviews is outlined in Table 23.

The attitude to task shifting was positive by all key informants interviewed. Although many limited the scope of services to oral drugs as most of the health care providers in the study knew that changing the injection drug policy will not be easy and will take time. A district level key informant stated

"As long as it is not an injection, I think any form of oral drugs like vitamins and antibiotics will be ok. However, we need to train them [AMWs] on how to use the drugs with clear guidelines. Is life saving and it can be given to them safely."

Table 23: Responses from FGDs with mothers, community, AMWs and MWs for specific interventions

Task	AMWs (N=33)	MWs (N=15)	Mothers (N=29)	Community (N=36)
Oral supplementation to pregnant women	Confident; Majority of AMWs already in practice, and drugs are mainly supplied by the respective MW during the immunization sessions	Agreed; No difficulty being mentioned	Agreed; Have been taking drugs given by AMWs during pregnancy and childbirth	Agreed; AMWs have been providing oral medication to villagers for minor illnesses
Misoprostol for prevention of PPH	Confident; Some of the AMWs are distributing 2 tablets misoprostol to mothers with drugs provided by MWs especially in hard to reach villages	Agreed; Refresher training suggested on PPH and drug administration	Agreed; Some mothers have received 2 tablets after the birth of the baby from the AMWs, but could not identify the name of the drug	Agreed; Limited knowledge of the drug and if it is for the benefit of the mother and the baby willing to accept
Oral antibiotics for puerperal sepsis	Confident; Only a few AMWs have used antibiotics for puerperal sepsis as cases are rare	Agreed; Refresher training suggested on puerperal sepsis and use of antibiotics	Agreed; Have received some drugs for fever and cough but were not able to identify the name of the drug	Agreed; AMWs have treated fever and cough cases with paracetamol and amoxicillin. Only some were able to identify the name of antibiotics

***AMWs=Auxiliary Midwives; FGDs=Focus Group Discussions; MWs= Midwives; PPH=postpartum haemorrhage**

Feasibility of integrating new interventions into the current health system

Guidelines on use and availability of drugs

Key informants and MWs raised concerns regarding the instructions and guidelines for use of drugs by AMWs. They mentioned that there are no official guidelines and instructions on use of drugs by either AMWs or MWs. Since there are no guidelines, local

townships practices vary according to the availability of the drugs and informal instructions given by individual projects.

They also mentioned the availability and consistent supply of drugs required for task shifting. Currently, there is ample supply of drugs due to the government supply in 2015 and the 3MDG program, however MWs stated that regular and consistent supply of drugs will be needed for sustainability and effective task shifting. For the AMWs, the supply of drugs [such as ferrous sulphate, folic acid, B1, misoprostol and antibiotics (amoxicillin and metronidazole)] was currently given by the MWs but the supply is inconsistent. There is neither systematic supply chain mechanism for the AMWs nor any recording of drugs given which was articulated as a barrier to potential task shifting.

"We (MWs) just give the drugs when we have it and when we don't we cannot give it, they (AMWs) also get the drugs direct from the NGO working in the area, sometime" (MW FGD non-hard-to-reach)

Inconsistent MW availability

Key informants mentioned that task shifting of the proposed interventions was feasible in places where there is inconsistent availability of MWs. Although MWs are assigned to hard to reach villages where there is a sub rural health centre, they rarely live in the assigned villages due to transportation and socioeconomic difficulties. This inconsistent MW availability was also articulated by the mothers and community members in the FGDs. In one hard to reach village the MW had been absent throughout her assigned period. MWs also expressed their difficulties of staying in hard to reach villages due to challenging transportation, language barriers, poor living conditions and cost of living.

"If you are not a native, the very first problem is language. We can't live because their life styles are not the same….quite frankly, one who is not local will only stay for 15 days in an assigned area while local stays because the local one doesn't need to return home"

(MW FGD hard-to-reach)

Supervision and monitoring issues

All levels of health care providers pointed out that current supervision and monitoring systems for AMWs were weak. Apart from MWs meeting with AMWs during the monthly immunization sessions, there was no regular planned supervision or monitoring visits. Lack of support for travel was identified as the major barrier by MWs for supervision. Some of the AMWs mentioned that no government health staff had ever visited their villages. Many of the MWs mentioned that although they realize the importance of supervision and monitoring, there is no support mechanism currently available to solve the problem.

"No one from the health department has ever been to my village because it is very far and it takes me about 9 hours to get here but for you it may take the whole day"

(AMW FGD hard-to-reach)

Training gaps

Many key informants and AMWs in the study talked about the need for proper training if the new practices were to be implemented as there is no standard guideline on how to use the drug and dosage in the current training manual. Key informants also raised concerns regarding the current training materials and methods of training stating they were too theoretical and that the current AMWs' manual resembles a text book rather than a

training curriculum. There is no Training of trainers for AMWs at the national level. In regard to training for potential task shifting interventions, respondents emphasised practical training with hands on exercises.

"For the AMW, we must have a specific curriculum for the training and all the oral drugs usage needs to be in the guideline, it should be standardized from the Department of Health Human Resource and Planning. We need one trainer and trainee manual for the whole country. It should not be project or funding based. It is the responsibility of the health system to control the trainings" (District level key informant)

Health system priorities

Maternal and child health has been given a high priority by the government in recent years. Key informants from the national and district level mentioned that task shifting is a new word for them and that there are policy level limitations and delays that may be faced in introducing task shifting to AMWs. They suggested that the AMW program reached its peak in recent years due to political interest by the previous government. However, with the changing political landscape after the 2016 election, it is not clear if this support will continue. They stated that evidence based policy briefs will be necessary for the potential task shifting interventions to move forward with increasing awareness and interest. A national level key informant said that,

"At the moment AMW trainings are continuing but I think is not a priority anymore after the change of government and there is no clear policy….MW upgrading and curriculum development…. new Public Health Supervisor 2 trainings…is all here and there"

6.6 Discussion

The findings from this study highlight that AMWs in Myanmar are already demonstrating their capacity to provide selected maternal health interventions. Despite the absence of policy endorsement there is a local acceptance by MWs who facilitate AMWs to provide drugs to mothers in hard to reach areas. The current role of AMWs, as intermediaries between the community and the health system and their accepted place in antenatal care, childbirth and postnatal care translates to broad acceptability for giving oral medications to women during pregnancy and at the time of child birth.

Another factor in favour of task shifting is the inconsistent availability of the MWs in geographically hard to reach villages. Although the Ministry of Health and Sports recognises that more MWs are needed, there are still limitations to filling the gap.(66) Other studies have also shown that skilled health care providers are not available in the assigned health posts due to financial and transport difficulties, socioeconomic hardship, available schooling and geographical location.(33) Generally, AMWs in geographical locations where there are no MWs and no support system were more in favour of task shifting.(175, 182) Task shifting to alternative cadres for maternal and child health has been emphasized as an important strategy in countries where there is geographical inaccessibility and limited availability of skilled care attendants.(201-203)

Other country experiences demonstrate that administration of medications by community based health workers has reduced childhood and maternal morbidity and mortality.(50, 52, 204) Trained community volunteers in Nepal were able to provide misoprostol to women in the community and uterotonic protection for deliveries rose from 11.6 percent to 74.2 percent with largest gain to reach the poor, the illiterate and women

from remote areas.(114) A study in Pakistan using Trained Traditional Birth Attendants with monitoring supported by Lady Health Visitors and Community Health Nurses, to administer 600 microgram of misoprostol to women with postpartum haemorrhage has reduced maternal mortality by 24 %.(205) However, these studies also recommended the importance of training and supportive supervision as a necessity in success.(87, 104, 160, 206)

In our study task shifting was already occurring in the study townships. Although such informal task shifting has been suggested as an initial path to task shifting, informal task shifting without having an explicit policy has raised concerns by health care workers and policy makers regarding unclear role and responsibilities of health workers.(79, 87, 160) Without the protection of a formalized policy and guidelines in practice, task shifting may pose a threat to the safety and performance of AMWs.

In other reviews of task shifting programs recommendations include conducting a detailed task analysis of both the work of those to whom tasks will be shifted and the work of those from who tasks will be relieved, to ensure that the task shifting does not create a different system bottlenecks.(87, 104) Although this study reviewed the tasks provided by AMWs, the study was limited to this cadre only without a comprehensive review of tasks performed by MWs. A task analysis of existing community level providers for maternal and child health care is recommended for the effective implementation of the task shifting interventions.(79, 104) Also task analysis provides the opportunity to revisit the current voluntary status as the increasing complexity of tasks expected of AMWs may not be consistent with a voluntary status. Thus incentives and funding mechanism for AMWs need to be considered in future policy options.

Despite task shifting being a practicable option for human resource shortage, reports of concerns regarding quality, safety and sustainability have been documented from experiences of task shifting in HIV/AIDS in sub-Saharan Africa.(134, 207) Lessons learnt from barriers and enablers to effective implementation of the guidelines has pointed out that without evidence-based health policies to support implementation along with health system level factor readiness it will be hard to effectively implement task shifting initiatives.(143) Although there is an AMW manual(192), many of the health care providers in the study mentioned that no training curriculum for both trainers and trainees regarding AMWs existed. Reviews have pointed out that without appropriate training resources (curriculum, trainers and training materials) and appropriate skills building, task shifting may place the low level health worker and their supervisors at risk of malpractice.(79) In eastern Myanmar, task shifting to promote basic health service delivery among internally displaced people in ethnic health program service areas showed success through reorganizing and training the workforce with a rigorous and up-to-date curriculum for the Ethnic health organizations and community based health organizations.(64) According to the new National Health Plan, the government is committed to ongoing capacity building: “Ensuring that all Voluntary Based Health Workers, including CHWs and AMWs, are confident to take on the duties assigned to them is critical to their effectiveness. Sufficient skill-based training and consistent support and supervision from Basic Health Staff will be required – this requires resources to support and it needs to be taken into account for the uptake and delivery of interventions”.(61)

Strengths and limitations of the study

We employed a mixed method approach which enriched the study in two ways. First, the qualitative study helped us to understand the potential for task shifting three interventions to AMWs from both community and providers' perspectives. The feasibility of the tasks was confirmed by the quantitative study where we documented the frequency with which these tasks were already being performed by AMWs. However, the study townships were purposefully selected based on their hard-to-reach characteristics and findings may not be representative of the perspectives of equivalent stakeholders in other regions, limiting generalizability of our findings.

6.7 Conclusions

Our study brings light to the Myanmar context in considering the potential for training and task shifting the oral administration of essential maternal interventions at community level to AMWs. The necessary enabling factors that are described above include supportive supervision, clear drug usage guidance and procurement and policy commitment to task shifting. As the Ministry of Health and Sports is committed to increasing the number of AMWs in every village of the country for reaching equitable care to mothers and newborn, optimizing the role of AMWs through task shifting effective interventions on maternal and child health should be considered.

Authors' contributions

KKT contributed to study design, data collection, data analysis and led the first draft and finalization of the manuscript. TGM and KST contributed to the data collection and development of the manuscript. KNT and TZL contributed to data collection, data analysis and development of the manuscript. JGB and SL contributed to study design and

development of the manuscript. AM contributed to data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

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Chapter Seven: Prevention of postpartum haemorrhage

7.1 Introduction to Chapter Seven

As postpartum haemorrhage is the leading cause of maternal mortality globally and for Myanmar as well. Feasible interventions to prevent and treat PPH by community health workers is of importance in reaching effective care to mothers in rural remote settings in the developing world.

The research presented in chapter seven assessed the acceptability, feasibility and perceived utility of using AMWs to provide two specific community-based interventions for the prevention of PPH: misoprostol and inhaled oxytocin.

This chapter contains the following article, published under the Creative Commons license:

Than KK, Mohamed Y, Oliver V, Myint T, La T, Beeson JG, et al. Prevention of postpartum haemorrhage by community-based auxiliary midwives in hard-to-reach areas of Myanmar: a qualitative inquiry into acceptability and feasibility of task shifting. BMC Pregnancy Childbirth. 2017;17(1):146.

It also includes an article under review at BMJ Open:

Submitted publication: **"**Operational feasibility and acceptability of an inhalable formulation of oxytocin for improving community-based care in Myanmar" Kyu Kyu Than, Victoria Oliver, Yasmin Mohamed, Thazin La, Pete Lambert, Michelle McIntosh and Stanley Luchters. Submitted to BMJ open journal on 3 February, 2018.

Prevention of postpartum haemorrhage by community-based auxiliary midwives in hard-to-reach areas of Myanmar: a qualitative inquiry into acceptability and feasibility of task shifting

Kyu Kyu Than, Yasmin Mohamed, Victoria Oliver, Theingi Myint, Thazin La, James G Beeson, Stanley Luchters

BMC Pregnancy and Childbirth. 2017 May; 17:146

7.2 Abstract for Misoprostol study

Background: In Myanmar, postpartum haemorrhage is the leading cause of maternal mortality and contributes to around 30 percent of all maternal deaths. The World Health Organization recommends training and supporting auxiliary midwives to administer oral misoprostol for prevention of postpartum haemorrhage in resource-limited settings. However, use of misoprostol by auxiliary midwives has not formally been approved in Myanmar. Our study aimed to explore community and provider perspectives on the roles of auxiliary midwives and community-level provision of oral misoprostol by auxiliary midwives.

Methods: A qualitative inquiry was conducted in Ngape Township, Myanmar. A total of 15 focus group discussions with midwives, auxiliary midwives, community members and mothers with children under the age of three were conducted. Ten key informant interviews were performed with national, district and township level health planners and implementers of maternal and child health services. All audio recordings were transcribed verbatim in Myanmar language. Transcripts of focus group discussions were fully translated into English before coding, while key informants' data were coded in Myanmar language. Thematic analysis was done using ATLAS.ti software.

Results: Home births are common and auxiliary midwives were perceived as an essential care provider during childbirth in hard-to-reach areas. Main reasons provided were that auxiliary midwives are more accessible than midwives, live in the hard-to-reach areas, and are integrated in the community and well connected with midwives. Auxiliary midwives generally reported that their training involved instruction on active management of the third stage of labour, including use of misoprostol, but not all auxiliary midwives reported using misoprostol in practice. Supportive reasons for task-shifting administration of oral misoprostol to auxiliary midwives included discussions around the good relationship and trust between auxiliary midwives and midwives, whereby midwives felt confident distributing misoprostol to auxiliary midwives. However, the lack of clear government-level written permission to distribute the drug was perceived as a barrier to task shifting.

Conclusion: This study highlights the acceptability of misoprostol use by auxiliary midwives to prevent postpartum haemorrhage, and findings suggest that it should be considered as a promising intervention for task shifting in Myanmar.

7.3 Background

Maternal mortality remains a major challenge to health systems worldwide. Globally, there were an estimated 303,000 maternal deaths in 2015.(4) The leading cause of maternal mortality in low-income countries is postpartum haemorrhage, which is the primary cause of nearly one fifth of all maternal deaths worldwide.(8) Postpartum haemorrhage is commonly defined as a blood loss of 500 ml or more within 24 hours after birth. In many cases, postpartum haemorrhage after birth is preventable through use of prophylactic uterotonics during the third stage of labour with timely and appropriate care and management.(208)

In Myanmar, it is estimated that the maternal mortality ratio decreased from 360 to 200 per 100,000 live births between 2000 and 2013.(4) However, according to a nationwide cause-specific maternal mortality survey, postpartum haemorrhage remains responsible for an estimated 30 percent of all maternal deaths, making it the leading cause of maternal mortality in the country.(10) Urgent actions are being taken by the Government of Myanmar to bring down the high rate of maternal mortality, recognising the human resource shortage in hard-to-reach areas as one of the main causes. Inadequate health literacy in the community, high patient to provider ratios, and poor accessibility are some of the challenges faced by skilled birth attendants assigned to rural hard-to-reach areas.(33) One of the mechanisms that the Ministry of Health has employed is to promote the existence of auxiliary midwives (AMWs) with the aim of "one AMW to be trained in every village" by 2016.(39) AMWs are categorized as unpaid volunteer health workers and have been part of the health system since the late 1970s.(72) AMWs are mostly local women with secondary level of education, who have been selected and trained under the guidance of the Township Health Department for three months in theory and three months in practical skills related to antenatal care, uncomplicated deliveries and postnatal care. The main role of AMWs is to perform preventive care such as counselling of mothers on safe motherhood and promoting delivery with a skilled attendant. AMWs are to assist midwives (MW), who are skilled birth attendants from the formal health sector.

When a skilled birth attendant is available, the most effective intervention for preventing postpartum haemorrhage is active management of third stage of labour which includes administration of a uterotonic drug after the birth of the baby, controlled cord traction, and uterine massage. Active management of third stage of labour using oxytocin

injection as the preferred uterotonic is current best practice for prevention of postpartum haemorrhage.(209-211) However, the need for cold chain storage and a skilled provider to administer an injection hinders the distribution and usage of oxytocin in many resource-limited settings, particularly in more remote communities.(211)

Misoprostol is an oral uterotonic drug suggested as a substitute to oxytocin in low resource settings.(109, 113) As this drug does not require cold storage and can be administered orally, it has been used and proven to be effective when administered by community health workers in other settings. For example in a randomized controlled placebo trial in Pakistan showed that provision of misoprostol by Trained TBAs in home birth settings reduced the rate of PPH by 24 %.(114, 115, 205, 212) Current World Health Organization (WHO) task shifting guidelines specifically recommend misoprostol use by AMWs in situations where there are no skilled birth attendants and home births are common.(43) In Myanmar, 70 percent of the population resides in rural areas where home births are a common practice.(68) Although AMWs in Myanmar are categorized as unskilled birth attendants, current training manuals include the topic on active management of the third stage of labour with the use of misoprostol.(192) However, use of uterotonics including misoprostol by AMWs remains controversial due to concerns regarding the management of possible side-effects such as fever and chills, and the potential use of misoprostol to induce abortion. This study aimed to explore community and provider perspectives on the role of AMWs and explore community-level provision of oral misoprostol by AMWs.

7.4 Methods

To understand the barriers and facilitators towards task shifting of AMWs in Myanmar, we undertook a descriptive mixed methods study. This paper reports on the qualitative research component of the study.

The qualitative inquiry was conducted in Ngape Township (an administrative subdivision of a district) in Myanmar. Ngape Township was purposefully chosen because it is a hard-to-reach township, some 16 hours driving from Yangon. Ngape Township has an estimated population of 46,572 and has one township hospital, one station hospital and three rural health centres.

The consolidated criteria for reporting qualitative research (COREQ) checklist was used to report the methodology and findings of the study.(186)

The research team consisted of one experienced qualitative researcher who moderated all interviews and focus groups, and four research assistants involved in note-taking and transcribing the audiotapes. Apart from one research assistant, all were female. Two research assistants were medical doctors and two were non-medical, all with some level of experience in conducting in-depth interviews (IDIs) and focus group discussions (FGDs). The research team participated in a three-day refresher training on the background and rationale of the study, its objectives, ethical considerations and on strengthening certain qualitative research techniques more specifically.

The topics that were covered in the interviews and focus groups were beliefs and practices around childbirth, community preference of birth care provider, birth place, role of

provider in antenatal, childbirth and postpartum care, beliefs and practices around postpartum haemorrhage and other complications, relationship with health care providers, perspectives towards AMWs, and provider and community perspectives towards task shifting of misoprostol to AMWs. Pre-testing of the interview and focus group guides was done in Thanlyin Township (a semi-rural area in Yangon Division) to identify the nature of the interview/focus group and the content of the interview or focus group guide. From the pre-test, it was learnt that conducting FGDs with the AMWs in the hospital setting was not conducive to the discussions as they were reluctant to talk about issues related to relationships with health care providers and actual practices in the community. Therefore, apart from the two FGDs with the MWs, which were done in the township hospital, all the other FGDs were done in community gathering places of the respective villages and the office of an international NGO in Ngape Township. All the individual interviews were done in private places chosen by the interviewee, and were mostly carried out in the offices of interviewees.

Five advocacy meetings were undertaken with the district and township level authorities before data were collected. A total of ten key informants (three national level health planners, five district and township level health planners and implementers, and two from the 3 Millennium Development Goal (3MDG) fund who were involved in maternal and child health program implementation) were conducted. Moreover, 15 FGDs (two with MWs, five with AMWs, four with community members and four with mothers of children under the age of three years) were done from both hard-to-reach and non-hard-to-reach areas as the main dimension for sampling. Each FGD consisted of between five and twelve participants. The criteria for categorization of the hard-to-reach and non-hard-to-reach

villages are based on the geographical hard-to-reach definition used by the 3MDG programme based on scores allocated for travelling time to the nearest facility, mode of travel, transport charges and roads affected by seasonal variation. A total of 12 points are given and villages scoring 0 to 3 are considered as non-hard-to-reach, while 4 and above are considered as hard-to-reach villages.(213)

As all the research team members were Myanmar nationals, there were no language or cultural barriers. The process of the research team members explaining ethical procedures and permissions granted to the participants during the first session created reluctance among many participants in the beginning of the interviews or focus groups, as they saw the interviewers as academic professionals, creating a power imbalance. This was mitigated by first talking to them about their personal backgrounds and demonstrating an interest in their views regarding the topic, which took around five to ten minutes. It is still acknowledged that responses from participants may have been influenced by their perception of the research team.

All the FGDs were audio recorded with written informed consent from the participants. Three interviewees refused to be audio recorded; all other IDIs were audio recorded. Note taking was done for all the interviews and FGDs. All audio recordings were transcribed verbatim in Myanmar language from the digital recorders by the note takers and checked against field notes for consistency. The durations of the FGDs and IDIs ranged from 30 minutes to 90 minutes with an average duration of 50 minutes. Data were collected until it was felt that data saturation was obtained. During the data collection process, daily discussions were made around the main themes using a matrix in Myanmar language. These discussions afforded the opportunity to undertake preliminary interpretation of the data

collected while it was still fresh in the minds of the research staff. Before the actual coding, all transcripts were read and reread by the principal author in Myanmar language and all the translated versions of the transcripts were read and reread by the other coders. Transcripts of FGDs were fully translated into English before coding, while remaining data were coded in Myanmar language using ATLAS.ti software. Two data coders coded the transcripts. Reliability coding was set at 80 percent agreement and the inter-coder reliability was found to be over 80 per cent. This approach balanced the differing views of the researchers in the study. During the time of coding, any unclear information regarding the transcripts and context was verified and clarified with the primary author who has knowledge of the context. The primary coding structure was developed around conceptual codes and sub-codes identifying the key concepts and essential dimensions of the main topic domains. In some of the topics the sub-code level went down to three levels under the main topic. Relationship codes were also found identifying links between other concepts coded with the conceptual codes. Participant characteristics (key informants, MWs, AMWs, mothers and community members) were also considered during the coding process. Before finalising the code structure, the two researchers who coded the transcripts collaboratively reviewed the coding structure and agreed on the final version. Main themes were pre-identified using the focus group discussion and the individual interview guides and emerging themes were also noted and discussed. Quotations are used to support the study findings and to enhance understanding of the local context.

7.5 Results

Study participants

Data were collected over a 7-month period between July 2015 and February 2016. Ten participating key informants came from the national Department of Health, and from district and township level health departments involved in maternal and child health planning and implementation (Table 24). District and regional level health departments provide supervisory and technical support to the township level and guide the process of AMW recruitment, supervision, training and decision making towards AMW roles and tasks. Township level health departments manage the township health system which is the backbone of primary health care, provides comprehensive health services at the local level and is predominantly responsible for management of the AMW activities(58). Key informants had between five and 37 years of experience in the health service.

Fifteen MWs and 33 AMWs participated in two and five FGDs respectively. Thirty-six community members participated in the FGDs, 18 being male and 18 female. Community members comprised of local people who are knowledgeable about their village such as community leaders, teachers, village health committee members and elders.

Table 24: Overview of study participants of the focus group discussions and in-depth interviews

Category	Number of Focus Group Discussions	Total no of participants	Age range of participants
Auxiliary Midwives (AMWs)	5	33	19-52 years
Midwives (MWs)	2	15	24-55 years
Mothers with children under three years of age	4	29	21-37 years
Community members	4	36	21-60 years
Key informants	-	10	31-67 years

Community attitudes and practices towards childbirth

Our inquiry identified that many women in the study township preferred a home birth. The main reasons for choosing a home birth were family and community support

given at the time of childbirth. In hard-to-reach villages, a village was still perceived as one large family with social and traditional closeness to one another. It was perceived that during childbirth, women who may or may not be a relative are always there to lend a helping hand. Participants in the study mentioned that giving birth surrounded by relatives and neighbours provided them with strength and courage.

" ….when we have labour pain we call: "Mom, sisters, please come. I have pain." We also call the neighbours. I feel strong and they cheer me and help me shout"

(a woman in FGD with mothers)

Another reason given in favour of home births was that there is no one to look after the children or household if mothers would leave the house. For a facility delivery, there tended to be a need for an accompanying person to look after the woman and at the same time someone to look after her children at home. Someone to stay with the children or take care of the household during the facility delivery was hard to find, while for home deliveries women can easily come and attend the delivery as they live near to one another and can come when they have free time.

"…they prefer home deliveries…..most of the people live in the farms and not in the village…..who will look after their live stocks like pigs and chickens…who will look after their children?"

(AMW from non-hard-to-reach village during FGD with AMWs)

Community members and providers in hard-to-reach areas mentioned long distances and travelling time to reach the nearest hospital as a barrier to facility births. In these areas, traveling to the nearest hospital could take over 6-10 hours of walking before reaching a

road where transport needs to be arranged. Women in these hard-to-reach areas were described by MWs as the hardest community groups to send to hospital when requiring emergency care. Planned facility based deliveries for high-risk women are recommended by the AMWs and MWs. It was reported that many of the women who lived near a facility were more willing to go for a facility delivery, whereas women in hard-to-reach areas only go to a health facility for complications and emergencies.

"I got labour pain and waited for about 1 day and 1 night hoping to deliver the baby at home. The TBA [traditional birth attendant] didn't know what was happening. When examined by the AMW and didn't see the head of the baby as well. I was told I must go to the hospital… So, I hired the car and went to the hospital"

(a woman who had facility delivery from hard-to-reach area in the FGD with mothers)

It was not only due to distance, but also due to the costs associated with transport and hospitalization. Women reported that the only reason to give birth at a facility was in situations of a life-threatening emergency.

"I had to go to the hospital because my placenta did not come out after the baby was born… I was scared but the AMW said we must go… or it will cause my life"

(a woman who had complications during birth in the FGD with mothers)

Care providers at home births

The main providers attending home births in the study area are AMWs, MWs and traditional birth attendants. Few reported on the use of traditional birth attendants to manage the home deliveries. Currently, traditional birth attendants are reported to be less frequently used for assisting with deliveries, but considered as helpers for the daily cooking

and cleaning activities for some of the wealthier families in the village. In villages where the MW is present, home births are mainly attended by the MWs. However, in villages where there is no MW, and particularly in hard-to-reach areas, the main health care providers for home births are AMWs. In some of the villages where there are both MWs and AMWs, the AMWs often assist the MWs during delivery.

"mostly the mothers call the AMWs first because they live in the village but the AMWs under my supervision always inform me with a phone and I also attend the delivery together."

(MW from a hard-to-reach area during FGD with MWs)

Perspectives towards AMWs

According to the mothers and the other community members, AMWs were easily accessible as they lived within the community. They described AMWs as 'natives who live close to them' and who can be called upon 24 hours a day, seven days a week. Having a village-owned AMW was considered an asset to the village. Mothers in the community also mentioned that AMWs are trustworthy and skilful members of the community. AMWs are well-recognised by the community for their care during the time of need not only for pregnant women but for the village as a whole.

"She [AMW] lived in this village all her life. She delivered all three of my babies and she is very skilful. Also, she [AMW] has very good relationship with [midwife] and if needed she also calls her and attend the deliveries together."

(Female community member during FGD with community members)

Acceptability of AMWs was generally high among key informants from all levels of the health system. MWs and other township level health care providers mentioned that AMWs are promising health care providers for the community, especially in the more remote areas where there is no MW. MWs reported relying on the AMWs for all services rendered to the mother and the child and MWs appreciated their assistance.

"AMWs are essential especially in places where we can't go. Mothers may want to deliver with us… but in reality it is very far and we cannot be there, so they usually deliver with the AMWs. If they need help, they send someone (flag person) to call us for help…. when it comes to delivery, they [women] can't wait and have no time to call us in advance."

(MW assigned to a hard-to-reach area during FGD with MWs)

Community members and AMWs in the study mentioned that in some of the villages, MWs were only able to come once a month for immunization. Reluctance of MWs to stay in villages, and barriers to access resulting from long distances and tough travelling circumstances were major factors.

"Our village is quite far, although a midwife is assigned, she rarely comes, she only comes for immunization… not only her… none of the midwives stayed. We have the rural health centre and we made a house so that MWs would stay, but they don't stay… it took you all to reach here half a day… in the rainy season… is very tough"

(Community member from hard to reach village in the FGD with community)

Community members indicated that they relied on the AMWs because they were local women and readily available for deliveries and in times of emergencies. Although

AMWs were considered as reliable health care providers, some of the providers mentioned their concerns about over-confidence of the AMWs in conducting health care activities.

"They [AMWs] think they can do all. We teach them ethics in school, meaning in the training but they act in the village as they were trained MW and say and act like a MW. I mean, we teach them and tell them what to follow 'dos and don'ts' during their training but they act and do beyond what is taught."

(Township level health care provider from key informant interview)

Experiences of post-partum haemorrhage by AMWs

Although postpartum haemorrhage is a rare event in their daily practice, many of the AMWs in the study had experienced one or more serious events of a patient with severe bleeding, either in the community or at the hospital, during their service years. AMWs mentioned the events as unexpected and scary with serious 'fear of death' as their main concern due to limited experience and lack of available resources. The only measure AMWs were trained in and able to provide was timely referral to the nearest hospital and many felt helpless when they actually encountered the bleeding. The second level of care at rural health centres is not equipped with the lifesaving facilities for a bleeding woman in life-threatening danger Therefore, referral to a tertiary care hospital seemed to be the only resource for further care.

"…I felt so scared as she was bleeding heavily and the MW told me to come to the hospital immediately and I put my fist into the vagina to stop the bleeding and I thought she was going to die"

(AMW from hard-to-reach village during FGD with AMWs)

Current practices and management of post-partum haemorrhage

Strong national guidelines exist for the government-trained skilled birth attendants at the community level (MWs) for the management of postpartum haemorrhage. Oxytocin injection is widely used in the facility settings, and is the intervention of choice. Management of postpartum haemorrhage at the community-level varied between MWs: most use 10 units of intramuscular oxytocin injection for prevention of postpartum haemorrhage, while a few MWs mentioned using misoprostol immediately after birth. The law prohibits AMWs from administering any injections, and current national guidelines do not support the use of misoprostol by AMWs. Misoprostol was introduced into the township health system around 2012. In the study Township, the drug became widely available with the introduction of the 3MDG program in 2014. One of the township level key informants described the availability of the drug as follows:

"Nowadays, we have plenty of misoprostol and we mainly distribute to the MWs. For the AMWs, although it is in their manual, there is no clear guideline for distribution and usage by the central health authority… so what should we do"

(Township level health care provider from key informant interview)

AMWs also seemed uncertain about how and where to procure it. An AMW from a rural area stated:

"…we are willing to give misoprostol to the mothers, but currently only the MW give it, we are not allowed to give it…and we don't have the drug either"

(AMW in hard-to-reach area during FGD with AMWs)

According to the district level key informant interviews, each township seemed to have different practices with respect to misoprostol according to the township medical officer's authority. In the study township, there seemed to be no restriction on the distribution of misoprostol to the AMWs by the MWs.

"…the trend is changing [meaning involving all community base health workers] and we allow them [AMWs] to deliver non risk cases, you see old ones [AMWs] are delivering well and I think giving misoprostol would not be a bad idea. You see if our midwives are allowed to use misoprostol and they [AMWs] are not, it is hard for them to survive in the community. Our midwives give drugs and they [AMWs] are only allowed to rub the abdomen. I think that is not fair, they are the main persons in the community."

(Township level health care provider from key informant interview)

MWs in the study similarly mentioned that they were willing to give misoprostol to AMWs. Some of the MWs in the study had already distributed misoprostol to AMWs, especially in hard-to-reach areas and to those whom they trust.

"We give the misoprostol together with the CDK [clean delivery kit] to all the AMWs in our areas. For those who are near to us, there is no problem because it is easy to monitor and refer if needed. But for those in the hill hard-to-reach, there is no-one apart from them. We tell them again and again when to give the drug [misoprostol], only after the birth of the baby and not to use it any other time"

(MW assigned in the hard-to-reach area during FGD with MWs)

However, some of the key informant interviewees mentioned that they worried about the misuse of misoprostol to induce abortion, but MWs and AMWs in the FGDs did

not mention anything in relation to abortion, potentially because induced abortions are illegal in Myanmar and are therefore a highly sensitive topic.

"I always tell the AMWs to give the drug [misoprostol] only after the baby is born as it is very dangerous if is given before the delivery of the baby and because they are away from me during the time of the actual birth. I worry that they would use it early"

(MW from hard-to-reach area during FGD with MWs)

One of the reasons for this concern was that the drug's commonly used name in Myanmar language, "tha ein pwint say" (the ein: uterus; pwint: open; say: medicine), literally means "a drug that enhances the opening of the uterus", creating misunderstanding among the users. Thus it was now purposely referred to as "tha ein kyunte say" (the ein: uterus; kyunte: contract; say: medicine), literally meaning contraction of the uterus, in most of the trainings.

"You see they [AMWs] know it as "Tha ein pwint say" and we are worried that they would use it before delivery thinking that it will enhance labour. So we emphasize in the training as "tha ein kyunte say" and we stress that it can only be given after the birth of the baby"

(Township level trainer of AMWs from key informant interview)

AMWs in the FGDs stated that they are willing and confident to take on the task of administering misoprostol during home deliveries. In addition, many of the AMWs expressed their frustration about not being allowed to provide any drugs to help a woman who is relying on her for care in time of danger.

"When something happens, they [mothers] are with sad faces. They come to us with a small face [meaning a look of helplessness] saying we need you to treat us… The thing is that it is not that we cannot do it [give misoprostol], but we are not allowed to do it and we are scared to do it [scared of being punished rather than scared of giving the drug] …we are afraid"

(AMW in hard-to-reach area during FGD with AMWs)

AMWs in the study considered that giving this life-saving drug would increase not only trust by the community but also increase their self-confidence in managing deliveries. However, some of the AMWs in the study highlighted the need for refresher training about postpartum haemorrhage and standardized dosage guidelines in using misoprostol.

"we need training on postpartum haemorrhage and also how to prevent and treat before referring as is a life threatening event. We are confident to give the drug if we are trained properly and clearly teach us on how many tablets to give and when to give… we will follow what is taught"

(AMW in hard-to-reach area during FGD with AMWs)

It became clear that there are no consistent guidelines at township level for distribution of misoprostol. The township level health care providers mentioned that they would be willing to distribute misoprostol to the AMWs if there was a clear written approval from the national level health authorities regarding the dosage and timing of drug delivery. Providers stressed that misoprostol should only be distributed to AMWs after systematic training about the benefits, side effects and correct time for usage.

Training of AMWs

According to the most recent AMW training curriculum in Myanmar, AMWs are taught a three-months theory and three-months practical training at the township or the respective station hospitals. Although delivery and postpartum care are meant to be taught through three-hour-long theoretical lectures each with 20 hours of practical training, most of the participants in the study stated that theory was taught in a one-way lecturing format with minimal supervised practical training. Active management of the third stage of labour had been included in the training, however information provided for the use of misoprostol was inconsistent. Within the last five years, there have been three versions of the standard training guidelines in which the dose of misoprostol was different. The first guideline stated two tablets (400 μg), the second guideline did not specify the dosage and the latest guideline stated three tablets (600 μg) immediately after the birth of the baby. As a result, within the same township, AMWs had access to conflicting guidelines.

"No, it [management of postpartum haemorrhage] was not taught… we were told to give [misoprostol] after the birth of the baby… not really clear explanation."

(AMW from non-hard-to-reach area during FGD with AMWs)

As a result, some of the AMWs explained that because the training was not clear, they had no option but to just refer patients to the health facility.

"*we don't wait…we just refer as early as possible if is of risk…like multipara…*"

(AMW from non-hard-to-reach area during FGD with AMWs)

The information about the use of misoprostol as part of active management of third stage of labour by AMWs is included in the latest 2015 curriculum for AMWs, using a WHO

standard dose of 600 µg (3 tablets) after the birth of the baby. However, the manual does not specifically state that AMW are allowed to administer misoprostol. Ongoing refresher trainings and newly trained AMWs in 2015 are said to be using the new guidelines.

7.6 Discussion

Our work sought to reignite discussion on the potential for task shifting of misoprostol administration to AMWs by investigating the acceptability and feasibility of this intervention. The findings showed that AMWs generally were trained on the active management of third stage of labour, including the use of misoprostol, but not all AMWs reported using misoprostol in practice. Supportive reasons for task shifting administration of oral misoprostol to AMWs included discussions around the good relationship and trust between AMWs and MWs, whereby MWs felt confident distributing misoprostol to AMWs. However, the lack of clear government-level written permission to distribute the drug was perceived as a barrier to task shifting.

Overall in Myanmar, postpartum haemorrhage remains the leading cause of maternal mortality, accounting for 30 per cent of maternal deaths.(10) Equipping AMWs with the skills and resources to effectively prevent postpartum haemorrhage will be an essential component of efforts to reduce the incidence of postpartum haemorrhage. Although WHO guidelines recommend delivery of an injection of oxytocin as the first-line pharmacotherapy for the prevention and treatment of postpartum haemorrhage, the law in Myanmar restricts the use of injections by AMWs. Oral misoprostol is also an effective drug for the prevention of postpartum haemorrhage and is recommended by the WHO as a drug that could be used by AMWs in resource-limited settings.(43) Studies have also found that community-based distribution of misoprostol using a community level health worker was

effective for prevention of postpartum haemorrhage.(110, 214, 215) According to a study done by Thein Thein Htay in 2007, the use of oral misoprostol by MWs at the community level has proven to be safe and effective for prevention of postpartum haemorrhage in Myanmar since 2007 and was considered for nationwide distribution to MWs and AMWs.(216) However, competing priorities such as disease control activities over the past decade and frequent changes in policy-makers have hampered progress towards this goal.

A major enabling factor to task shifting misoprostol administration to AMWs was the recognition amongst community members, healthcare providers and policy makers of the critical role played by AMWs in providing care during childbirth, particularly in hard-to-reach areas. Home births remain common in Myanmar with over 70 percent of deliveries occurring outside of a health facility. (200) Our findings suggest this to be due to a combination of factors including convenience, cultural preference and significant geographical constraints, which restrict the accessibility of healthcare facilities by people in the hard-to-reach areas. Thus the roles of MWs and AMWs are essential as these community-based providers are often called upon to attend home births. Studies have also shown that community health workers are competent not only in pregnancy and childbirth practices, but also in providing other health related services such as nutrition promotion, immunization and disease control activities.(48, 217)

In our study area, AMWs were considered by community members and key informants to be capable providers of care during childbirth. As such, distribution of oral misoprostol to AMWs was considered by the midwives and key informants sampled in this study to be a potentially effective and feasible option for the prevention of postpartum haemorrhage where skilled birth attendants are not available. AMWs themselves reported

to be able and willing to take on the task of misoprostol administration and welcomed the opportunity to expand their capacity to provide improved care during delivery.

A number of barriers to task shifting of misoprostol to AMWs were identified by study participants. Some key informants mentioned fear of untimely misoprostol use before the child is born, or when used to induce abortion, particularly if sufficient training and standardised policies and procedures were not in place. Interestingly, the use of misoprostol to induce abortion was not mentioned by MWs and AMWs, likely because they know it is illegal to use misoprostol for this reason. Studies on the use of misoprostol for prevention of postpartum haemorrhage have helped to address these concerns, and a comprehensive review of 18 programs using lay health care workers to provide misoprostol found very low rates of incorrect use.(110, 214, 215) This suggests that AMWs in Myanmar have considerable potential to administer misoprostol correctly if provided with sufficient training. AMWs themselves also spoke about inconsistent quality of training, and some highlighted a paucity of information in their training regarding postpartum haemorrhage and the rationale for using misoprostol. A review done by Prata et al. in 2013 stated that along with a national policy and drug distribution mechanisms for misoprostol, adequate provision of information and training should be included for lay health workers and the community.(214) The findings suggest that MWs and township-level health providers would be confident in the ability of AMWs to administer misoprostol correctly with additional refresher trainings. Some of the AMWs in our study were already administering misoprostol, further highlighting the need for clear guidelines, consistent policies and adequate training.

This study suggests that oral misoprostol is a viable option to prevent postpartum haemorrhage especially for hard-to-reach areas where AMWs are the primary attendants for home births.

Limitations of the study

The study township was purposively selected based on its 'hard-to-reach' characteristics and as such, findings might not be representative of the perspectives of equivalent stakeholders in other townships in Myanmar, potentially limiting generalization of the findings to other areas. The relationships between the AMWs and the MWs in the study were very positive and it may be due to the social desirability bias of their relationship that actual practice may vary.

7.7 Conclusion

With over 30 per cent of the maternal deaths in Myanmar due to postpartum haemorrhage, it is time that health planners consider this evidence-based intervention for scale-up throughout the country. The findings of this study support the feasibility of task shifting of misoprostol to AMWs as a crucial intervention for the prevention of postpartum haemorrhage in Myanmar.

Authors' contributions

KKT contributed to study design, data collection, data analysis and led the first draft of the manuscript. YM contributed to data analysis and development of the manuscript. VO contributed to data collection, data analysis and development of the manuscript. TG contributed to study design and development of the manuscript. TZL contributed to data collection, data analysis and development of the manuscript. JGB contributed to study

design and development of the manuscript. SL contributed to study design, data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

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Operational feasibility and acceptability of an inhalable formulation of oxytocin for improving community-based care in Myanmar

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7.8 Abstract for Inhaled Oxytocin study

Objective: This study assessed the potential operational feasibility and acceptability of a heat-stable, inhaled oxytocin product for community-based prevention of postpartum haemorrhage in Myanmar.

Methods: A qualitative inquiry was conducted in Myanmar between June 2015 and February 2016 through focus group discussions and in-depth interviews. Research was conducted in South Dagon township (urban setting) and in Ngape and Thanlyin townships (rural settings) in Myanmar. A total of 11 focus group discussions and 16 in-depth interviews were conducted with mothers (30 participants), healthcare providers (67 participants) and key informants (3 participants). All audio recordings were transcribed verbatim in Myanmar language, and were translated into English. Thematic content analysis was done using NVivo software.

Results: Future introduction of an inhaled oxytocin product for community-based services was found to be acceptable among both mothers and healthcare providers, and would be feasible for use by lower cadres of healthcare providers even in remote settings. Community-based providers such as midwives and volunteer auxiliary midwives were described as key advocates for promoting community acceptance of the product.

Healthcare providers perceived the ease of use and lack of dependence on cold storage as the main enablers for inhaled oxytocin product compared to the current gold standard injection oxytocin, particularly in more remote settings. A single-use disposable device with clear pictorial instructions for use with a price that would be affordable by the poorest communities was suggested. Appropriate training for community-based providers and mothers was also said to be essential for the future induction of the product into community settings.

Conclusion: In Myanmar, where home births are common and access to cold storage is limited, inhaled oxytocin product may serve as an acceptable and feasible intervention for prevention of postpartum haemorrhage by lower cadres of healthcare workers in community-based settings.

7.9 Background

Postpartum haemorrhage (PPH) is the leading cause of maternal mortality worldwide, contributing to approximately 20% of total maternal deaths.(8) The gold standard uterotonic agent, oxytocin, has been shown to reduce the risk of PPH by 50% and is recommended by the World Health Organization (WHO) for administration via intravenous or intramuscular injection to every woman during the third stage of labour for the prevention of PPH.(208) Several factors currently limit widespread access to oxytocin in developing countries where the majority of PPH deaths occur.(4) In the injectable form, oxytocin is sensitive to heat and must be supplied and stored under cool or cold conditions in order to maintain drug potency.(208, 218) This presents a significant problem particularly in rural areas where the availability of cold chain storage is limited. The necessity to administer oxytocin via an injection further limits widespread access to this intervention. In

low and middle-income countries, a significant proportion of births occur outside healthcare facilities - in the absence of the equipment and medical personnel required to deliver an injection.(218-220)

Monash University and GlaxoSmithKline (GSK) are currently collaborating to develop a heat stable, easy-to-use, low-cost, dry powder oxytocin product for respiratory delivery to prevent PPH in resource-constrained settings.(221, 222) The product is being designed to simplify the administration of oxytocin and remove the need for refrigerated storage or additional consumables for administration. It is envisioned that the inhaled oxytocin (IOT) product will therefore have utility at several points across the healthcare system, and could be particularly useful in remote facilities where refrigerated storage and supply of consumables can be unreliable and/or unavailable. In some contexts, with permitting policies and health system structures, there may also be the potential to expand IOT use to community-based births. This potential exist in Myanmar, where formally trained community-based providers are resourced and authorised to attend out of facility deliveries.

To inform future introduction and uptake of IOT, this study qualitatively assessed the operational feasibility and acceptability of IOT for improving community-based care in Myanmar.

7.10 Methods

A qualitative inquiry using focus group discussions and in-depth interviews was conducted to gain insight into the perspectives of healthcare providers, community members and key informants. Methods are reported according to the consolidated criteria for reporting qualitative research (COREQ) checklist.(186)

Study setting and participants

Myanmar has one of the highest maternal mortality rates in the South East Asia region at 282 per 100,000 live births.(7) The main cause of maternal mortality is PPH which is estimated to account for 30% of maternal deaths.(10) Approximately 70% of the population resides in rural areas and the majority of the childbirths occur at home.(200) Three administrative areas, South Dagon, Ngepe and Thanlyin townships, were purposively selected for the study. South Dagon is an urban township and has a population of 297,000 with one 50-bed township hospital, one station hospital and two urban health centres. Ngape is a rural township and has a population of 46,500 and has one 25-bed township hospital, one station hospital, two rural health centres and 14 sub centres. Thanlyin is a large township, which has both urban and rural characteristics and has a population of 188,000 with a 150-bed district hospital, one station hospital and five rural health centres.

A total of 16 in-depth interviews and 11 focus group discussions were conducted involving 100 persons. Focus groups had between five and ten participants, and included a total of 26 midwives (MWs), 28 auxiliary midwives (AMWs) and 30 mothers with a child aged less than three years. In-depth interviews consisted of healthcare providers at the township level, obstetricians from both the public and private healthcare system and other key informants from the pharmaceutical industry and UN agencies working on maternal and child health.

Research team and data collection

The research team was led by an experienced qualitative Myanmar researcher. All six team members (three were medical doctors and the others had worked in the medical field) had previous experience with qualitative data collection. Apart from one, all were

women. Four-day training was given to all researchers on background and objectives of the study, the design, and data collection, management and analysis methods. None of the research team members had prior relationship with the study participants. Rapport with the participants was built during focus group discussion through self-introduction and explaining the research objectives.

Data collection for the in-depth interviews was mostly conducted in the participant's office as the place of choice by the interviewee ensuring confidentiality and convenience. Focus group discussions with MWs, AMWs, and mothers were conducted in comfortable private places where confidentiality and privacy were ensured. Question guides were used to investigate the practices around childbirth, beliefs around PPH and bleeding, perspectives of medications around the time of birth, oxytocin current practices, perspective towards inhaled oxytocin and possible implementation strategies. In all interviews and focus groups, only after the discussion moved towards management of PPH, the moderator gave a brief description of inhaled oxytocin. To aid in the description of the product, a Rotahaler^{TM} device was shown as an example of a low-cost, passive inhaler which could be used for oxytocin.

The duration of the focus groups and interviews ranged from 30 to 90 minutes and most were conducted in Myanmar language. Data were collected until it was felt that data saturation was obtained. All the focus group discussions were audio recorded using a digital recorder. For the in-depth interviews, apart from three obstetricians and two key informants from the pharmaceutical industry who declined to be digitally recorded, all others were digitally recorded. Contemporaneous notes were taken for all discussions and interviews.

Data management and analysis

All Myanmar language interviews and focus group discussions were transcribed in Myanmar language by the note taker for the focus group discussions and by the interviewer for the in-depth interviews, and were checked against the notes for consistency and validity. Transcripts were translated into English by a translator, and checked against the Myanmar transcripts to ensure the quality and the meaning of the original transcripts was not lost. To aid the analysis, NVivo (version 11 ©VMWare Inc.) software was used. Three data coders coded the transcripts. Reliability coding was set at 80 percent agreement and the inter-coder reliability was found to be over 80 percent. This approach balanced the differing views of the researchers in the study. Participant characteristics codes (obstetricians, hospital staff, MWs, AMWs, mothers) and setting codes (urban and rural) were also considered during the coding process. Before finalizing the code structure, all the researchers who coded the transcripts collaboratively reviewed and agreed on the final structure. Qualitative content analysis using both inductive and deductive approaches was used in interpreting the findings.

Ethics

Written informed consent was obtained from all participants, all of whom were reimbursed for the actual cost of travel plus a daily allowance to cover meal costs (3000 kyats, equivalent to US$2.5). Ethical clearance for the study was obtained from the Alfred Hospital Ethics Committee, Australia (Project 153/15), the Monash University Human Research Ethics Committee, Australia (CF15/1701 – 2015000854) and from the Ethical Review Committee on Medical Research Involving Human Subjects from the Department of Medical Research Myanmar (48/ Ethics 2015).

7.11 Findings

Unmet need for oxytocin in community settings

Home birth and cultural beliefs towards postpartum bleeding

Regardless of the place of residence, many women in the study preferred home births over facility births. The main reasons given were cost, supportive family environment and inconvenience of engaging a facility.

Women in the study described postpartum blood as 'bad' or 'impure' and explained that it was essential to remove this blood from the body in order to avoid subsequent pain or hardship. This viewpoint seemed more common among participants from rural areas as compared to their urban counterparts. A traditional oral medicine named 'Memakin say' is commonly used to facilitate bleeding and clean the body.

"You see, we have to carry the pregnancy for 9 to 10 months and the bad blood accumulated in our body for so long. So with the birth of the baby, it should all come out… or else if it stays in our body, we will not be healthy. So bleeding is a necessity for us after delivery. If it does not come out….pain in supra-pubic area will occur."

(33 year-old mother of three, rural area)

PPH was also mentioned as a potentially risky complication during birth by many of the respondents. Two mothers participating in the study had personally experienced excessive bleeding postpartum, and a few healthcare providers mentioned that they had seen a PPH case during their service years.

"We are afraid sometimes that after the birth of the baby, bleeding might occur"

(33 year-old mother of four, rural area)

Despite a common preference for home births and the traditional beliefs surrounding postpartum bleeding, a prominent theme during discussions with mothers was the trust placed in the formal health sector for matters relating to maternal health. In general, rural participants saw community-based providers, such as MWs and AMWs, as the key decision-maker or adviser for health, whereas participants from urban areas seemed to place more reliance on staff at healthcare facilities.

Mother 5: "We trust her (MW). We don't understand about health."

Mother 1: "So, we usually ask her (MW) and if she thinks it is good for us, we do it."

Mother 5: "Whenever we felt uncomfortable, we always went to see the Sayarma (MW)."

(FGD with mothers, rural area)

For the majority of women in the study, MWs and AMWs are the main homebirth attendants with occasional births attended by traditional birth attendants.

Access to quality oxytocin in community settings

Healthcare providers explained that the current narcotic law in Myanmar restricts use of injections by MWs and AMWs such that they are prohibited from routinely delivering an oxytocin injection for the prevention of PPH when attending out-of-facility deliveries. However, in practice, some MWs are administering an injection of oxytocin with the justification of its lifesaving potential, and with authorisation from the residing Township Medical Officers. However, the absence of national law authorising both MWs and AMWs to deliver injectable oxytocin restricts widespread use of oxytocin for PPH prevention.

"Another problem is that in our country, the narcotics laws do not allow the midwives to give [medicines in] injection form. So if we can avoid the injection form, and then we can use it [oxytocin]…and then it is definitely useful for prevention of PPH"

(Obstetrician in private practice, urban area)

Reliability and availability of the cold storage required to maintain oxytocin quality within the settings of community-based care was limited. Refrigerators were not available at Rural Health Centres and Sub-Centres, which are designed as bases for community-based MWs. Community-based providers can keep items cold for short periods using ice bricks (supplied from the nearest township hospital) in vaccine transport carriers but they explained the difficulty they would face if there were to maintain consistent refrigeration for oxytocin.

"We have to buy the ice in the city and there must be electricity to keep it cool. In the rainy season, it [keeping oxytocin cold] would not be feasible."

(MW, rural area)

In settings where cold storage facilities are available, unreliability of electricity supply was cited as a barrier, with frequent power outages and voltage fluctuation.

Acceptability and feasibility of inhaled oxytocin

Acceptability was explored through the perceived need for and willingness to use the IOT product when available. Although general acceptance of all forms of medication prescribed by healthcare providers was high among the community, injections stood out to be most preferred due to their quick action. However, some mothers also expressed fear of pain from an injection. Mothers participating in the study expressed their willingness to

accept IOT compared to oral and injectable drugs and did not mention any potential disadvantages that would indicate their rejection of the product.

"We don't need to drink it and it does not hurt like an injection, I think the inhaler will be really good"

(23 year-old mother, urban area)

Mothers and healthcare providers alike expressed a strong desire for a single-use device packaged within a sealed sachet to keep it 'sterile' and to prevent transmission of infections. Although there was no preference to the colour, the smell of the drug was thought to have a significant impact on acceptability. Several MWs and AMWs and one obstetrician suggested that mothers would be reluctant to inhale the drug if it has a strong or unpleasant odour. However, there were some mothers who explained that while a 'soft' smell would be favoured, they would be willing and able to inhale the IOT product regardless if it was important for their health.

Some MWs and AMWs held concerns about the feasibility of a mother inhaling from a device immediately after delivery, fearing the woman may be too tired. They suggested that only one inhalation, or potentially a few with not too much force would be feasible for postpartum women. Other healthcare providers disputed this idea and suggested that mothers would be completely able to use the inhaler as shown. This viewpoint was supported by mothers themselves, many of whom declared that they would have no problem using the device after delivery. Following a demonstration of the Rotahaler^{TM} device during the interviews and focus groups, both community members and healthcare providers remarked on the ease of use of the inhaler.

This ease of administration was highlighted as a benefit of the IOT product for MWs and AMWs attending home births, who are often alone and struggle to manage all aspects of maternal and neonatal care that are required during the early postpartum period.

"Actually, that (IOT) is more comfortable. It also reduces work. The injection to the butt will be like: open it, put it and such. This will be like open and can just say to the patient to inhale it by herself"

(AMW, urban area)

In contrast to mothers who expressed an unconditional acceptance of the IOT product, healthcare providers, especially the obstetricians, emphasised that the product should first be demonstrated to be effective with few side effects before it would be accepted by either themselves or the community. They suggested that assurance of safety and efficacy could come from WHO recommendations or from proven clinical trials before introduction of the product into routine clinical care.

"Although I think IOT is useful, the best thing is to wait for the WHO package. They will have some trials and then they will find out the potency and efficacy and then safety and then after that they will recommend to use in developing countries"

(Obstetrician in private practice, urban area)

Administration of inhaled oxytocin

MWs and AMWs attending home births were suggested as suitable providers for the introduction of IOT. MWs were seen as possessing the skills and knowledge required for them to safely and effectively administer the drug or instruct the mother or a relative to do

so. The ease of use of the IOT product was also thought to offer the potential to relieve the burden on MWs as they are often alone when attending deliveries in the community.

MW 4: "We can do our management better [with IOT] during birth"

MW 9: "…we can ask someone to help us give the inhalation to the mother, but we cannot do this with an injection as it need a health care provider with skill to do it."

(FGD with MW, urban area)

Opinions towards task-shifting IOT administration to AMWs were mixed amongst healthcare providers. In hard to reach areas AMWs, who often reside in the remote villages, were suggested as a more accessible provider of essential care in the absence of a MW. Some MWs and obstetricians were in support of IOT use by AMWs, and suggested that, particularly in remote areas, it would be necessary to allow AMWs direct access to the product.

"I think it should be in the hands of AMW, especially in the hilly regions. In emergency situations mothers don't have anyone to rely on."

(MW, rural area)

AMWs themselves explained that they often attend deliveries in the absence of a MW and in this situation a non-injectable medication, such as IOT, would provide them the opportunity to protect the mother from a potentially fatal PPH. AMWs spoke at great length about the distress of trying to provide quality health services to mothers when MWs are not available, especially as they are restricted from using any medications.

Conversely, some of the township level providers and MWs expressed their concern about the possibility of AMWs misusing IOT during delivery to augment labour, a practice suggested to be common amongst AMWs in the past. However, there were also suggestions that release of IOT with clear instructions and rebranding as a product indicated for postpartum use only (unlike the injection), could benefit women and community-based providers. One AMW suggested that the perception of oxytocin as a drug for augmenting labour is associated specifically with the injection and so may not be automatically applied to the inhaler.

Moderator: "Do people consider it [IOT] as a uterus opening drug?"

AMW: "They think injection will open the uterus, not an inhaler, so I think it is ok."

(FGD with AMW, rural area)

Regarding advanced distribution of IOT to mothers, the responses varied widely between the community and the healthcare providers. Mothers supported the idea, explaining that it would ensure they have the product regardless of where they deliver and who attends them.

"It would be more convenient if you can give it to the mothers, then we won't need to worry about getting the drug in time. Even if the Sayarma (MW) did not arrive in time, we can still use it after the delivery of the baby. It would be really useful."

(28 year-old mother of three, rural area)

In contrast, healthcare providers (community and facility-based) were more opposed to advanced distribution of IOT to community members due to the fact that mothers may

use the product before labour or delivery. Some mothers and healthcare providers suggested that community distribution of IOT should be selective and targeted specifically to mothers in hard to reach areas, as they are most likely to be at risk of delivering outside a facility or in the absence of a skilled provider. In general, a prominent opinion amongst community members and healthcare providers was that particular care was needed for community distribution of IOT.

Training

All participants suggested that training for mothers on IOT should start during the antenatal period. They emphasised that early exposure to the device would be beneficial for mothers to understand its function and intended use. The local MW of each village was suggested as the most suitable person for training the mother.

For the training of healthcare providers, suggestions centred on the necessity to conduct systematic training to ensure all cadres of healthcare providers are adequately educated about the IOT product. In the current model, healthcare workers are trained through a cascade system, beginning with a Training of Trainers (TOT) workshop at the national level and thereafter through states/regions, districts, townships, and finally down to the community level health workers. However, some MWs complained that this mechanism of training can result in messages being inaccurately or ineffectively passed down through the chain. Several MWs suggested that direct training where they can interact with teachers at the central level would be preferable to them. Additionally, a trainer at national level explained that the feasibility of conducting coordinated nationwide training would depend on finances and supplies. The suggested training content included

indication for use, contraindications, side effects, possibility of repeated dose and storage requirements.

Clear instructions on the purpose of the drug, how to use the device and possible side effects either written in Myanmar language or pictorially depicted were suggested by some mothers and healthcare providers.

Inhaled oxytocin pricing

Participants were also asked to suggest a price for the IOT product to ensure its affordability. Most stakeholders felt that a price of 1,000 kyats (0.80 US$) would be most affordable to community members, however it was suggested that a price of not more than 500 kyats (0.40 US$) would be necessary to ensure affordability to low-income families.

7.12 Discussion

To understand the acceptability and feasibility of implementing IOT in Myanmar, a situation assessment was conducted to explore current attitudes and practices towards childbirth, PPH and oxytocin. IOT acceptability was explored from the point of view of community members and healthcare providers, while perspectives of all stakeholders were used to understand the operational feasibility.

Non-facility deliveries remain common in Myanmar, and are usually attended by a skilled birth attendant (MW) or a volunteer AMW, with limited capacity to actively manage the third stage of labour. (68, 175)Government policy prohibits MWs from delivering injections outside of the health facility setting and thus currently MWs (not AMWs) are authorised to use misoprostol for routine prevention of PPH and can only deliver an injection of oxytocin for ‘life-saving’ purposes. AMWs face further restrictions and are

generally not authorised to use any medications to manage childbirth or PPH.(175) In the absence of national policy allowing these providers to use injectable oxytocin, access to gold standard measures for the prevention of PPH is limited.(175) The ability of MWs and AMWs to maintain a consistent cold chain for oxytocin is severely limited as most rural health centres or sub-centres are not equipped with cold storage facilities.(223) In addition, electricity supply was reported to be unreliable, compromising the effectiveness of available cold storage facilities. Against these backgrounds, out-of-facility deliveries attended by MWs or AMWs represent a clear setting where inhaled oxytocin could be beneficial through expanding access to first line therapy and obviating the need for cold storage.

Responses to the IOT product were overwhelmingly positive from community members, all of whom expressed an unconditional acceptance of the product and praised its ease of use. However, a barrier to the acceptability of IOT may arise on from existing traditional beliefs and practices which encourage expulsion of blood after childbirth. Community members may therefore resist a product which controls or reduces postpartum blood loss. However, many mothers from both urban and rural areas expressed concerns about excessive bleeding after childbirth, which could be harnessed to facilitate acceptance of IOT as a product for preventing dangerous levels of bleeding. Further, community members predominantly place their trust in the healthcare system, particularly in MWs. Thus it is likely that advice from MWs and other healthcare providers will dispel potentially inhibiting attitudes and facilitate community acceptance of IOT.

Amongst healthcare providers, opinions about IOT were predominantly positive, particularly in relation to ease of use. However, remarks from healthcare providers were often tempered with expressions of concern or apprehension. Given that IOT utilises a

different administration route, many providers expressed their desire to be assured of its efficacy and safety. Robust evidence of safety and efficacy will be generated as part of the regulatory requirements for the product. Attitudes of healthcare providers expressed in this study highlight the importance of making this data readily available to promote acceptance.

In addition to the safety and efficacy of the product, a common concern amongst healthcare providers was whether the device could be operated correctly to deliver the required dose to the patient. In this regard, care will need to be taken to ensure that community members can be appropriately trained on how to use the device given that the utility of the IOT product may to some degree be dependent on their participation in drug administration.

With respect to the acceptability of IOT use in community settings, most stakeholders suggested that IOT would be both appropriate and beneficial for use by MWs at out-of-facility deliveries. Healthcare providers suggested that MWs possessed the skills and knowledge required to administer the drug or instruct the mother or relative on administration. At a policy level, a non-injectable form of oxytocin aligns with both national drug law (which prohibits MWs use of injections) and standard treatment guidelines (which prioritise use of oxytocin over misoprostol for prevention of PPH).

The potential also exists to expand oxytocin access further by task shifting to AMWs. Although current policy states that AMWs are to assist MWs, staff shortages and extreme geographic barriers severely limit accessibility of MWs and as a result, AMWs are often required to act as the sole attendant for out of facility deliveries in rural remote areas.(175, 182) However, national policy currently prohibits use of uterotonics by AMWs and many stakeholders participating in this study had reservations about tasking-shifting IOT to these

providers.(39) Objections were primarily based on fears that the drug would be misused for the induction or augmentation of labour, which was reported to be a common practice amongst AMWs in the past. In contrast, there were some stakeholders, including township-level policy makers, who suggested that the knowledge and skill set of AMWs is improving over time and that these providers should be considered for IOT administration.

Training for end-users can be considered in the context of training healthcare providers and community members in the use of IOT. The coordinated chain of training down the hierarchy of healthcare providers currently in place in Myanmar was described as a means to efficiently and effectively ensure all healthcare providers in the country receive appropriate training. However, assuring the consistency of these trainings may be a challenge and may require both financial and system support.

Training pregnant women and their families through antenatal care appears to be highly feasible as coverage in Myanmar is high.(32) Additionally, this study suggests that there is a strong degree of community trust in and compliance with the advice of healthcare providers, further highlighting the availability of effective channels for community education.

Strengths and limitations of the study

The first qualitative inquiry exploring the operational feasibility and acceptability of a future heat-stable, inhaled oxytocin product for community-based prevention of postpartum haemorrhage in Myanmar to inform product development. Relatively large and diverse study population enrolled including community members and healthcare providers (community and facility-based) from urban and rural areas providing an insight into a range of different perspectives, which has been triangulated to enrich the findings. Study areas

were purposively selected based on 'urban and rural' characteristics and as such, findings might not be representative of the perspectives of equivalent stakeholders in other areas in Myanmar, potentially limiting generalization of the findings.

7.13 Conclusion

This study has uncovered a variety of factors that can be considered for the operational feasibility and acceptability of IOT product in community-based care settings in Myanmar. Use of IOT at community births attended by a MW was acceptable to most stakeholders and the ease of product use, heat stability and non-injectable delivery route were considered to be the major facilitators. Further decentralization of services to AMWs could further increase uptake of IOT, particularly in remote rural areas. The trust community members place in healthcare personnel, particularly community-based providers, may help facilitate community acceptance of IOT. Ensuring comprehensive training to community-based providers and mothers through participatory approaches starting from the antenatal period will also enhance the operational feasibility of the IOT product into the community.

Author's contributions

KKT contributed to study design, data collection, data analysis and led the first draft and finalization of the manuscript. VO contributed to study design, data collection, data analysis and development of the manuscript. YM contributed to study design and data analysis and development of the manuscript. TZL contributed to data collection and development of the manuscript. MM and PL contributed to study design and development of the manuscript.SL contributed to study design, data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

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Chapter Eight: Discussion and recommendations

This final thesis chapter provides a synthesis of the discussion presented in the results chapters and the recommendations arising from the PhD research. The first section discusses the main findings of the study with reference to previous research. The second section describes the possible ways forward for implementing task shifting of maternal interventions to AMWs in the wider context of the health system in Myanmar. The chapter finishes with strengths and limitations, recommendations, avenues for future research, and a conclusion.

8.1 Main study findings

Although the major causes of maternal mortality are known and are preventable through effective interventions, maternal mortality remains high in Myanmar.(5, 9, 17, 43, 103) These deaths are concentrated in rural and remote areas with poor health infrastructure and a lack of skilled birth attendants.(5, 32) As previously stated, task shifting of specific interventions to CHWs has proven to be effective in enhancing the reach of effective care to mothers in rural and remote areas.(43) This PhD research aimed to examine the role of AMWs and the feasibility and acceptability of task shifting selected interventions to improve maternal and newborn health care in Myanmar. The key findings in relation to this aim are detailed in the following sections.

8.1.1 Role of AMWs in the community

Considering the positioning and relationships of health workers within communities and the broader health system is an essential step to ensure task shifting implementation success.(83, 85, 224) Even straightforward medical tasks – such as providing oral

medications to mothers, or explaining the benefit of ANC and educating the community about birth preparedness – cannot occur unless CHWs have strong relationships with the community.(84, 98) Findings in this PhD research showed that AMWs are acceptable and accessible to both the community and health care providers in Myanmar. They are the first contact person for the mothers during pregnancy that provides a linkage with the health system in contacting the Midwives. There is also a strong relationship between AMWs and the community, and between AMWs and the township health system. In addition to the strong relationships, AMWs have built trust in their communities through assisting at childbirth and providing antenatal and postnatal care. Compared to TBAs who are also in the community, AMW are better trained and better connected to the health system, which is an advantage to women. The research highlights the intermediary role played by AMWs through "community embeddedness", a phrase used by Schneider, Hlophe and van Rensburg to describe the strong relationships of CHWs with the community.(225) Although community embeddedness serves as an important entry point for task shifting of CHWs, it is often ignored by program planners promoting task shifting.(85, 225) Understanding the existing relationships between health workers is also important to minimise misunderstandings, friction and duplication of efforts before implementation of new tasks.(44) Thus, program planners in Myanmar could utilise AMWs with confidence as they are embedded within the community and the health system.

Task shifting often starts informally either as a response to cope with an emergency situation or to respond to understaffed situations.(95, 226) Findings in chapter four showed that in spite of AMWs limited role capacity (promotive, preventive health activities and assisting of normal childbirth); AMWs in the rural remote villages are expected by their

community to provide emergency health care services. In these villages, AMWs are providing curative care to mothers and the community for emergency conditions due to the absence of more qualified health care providers. The availability and accessibility of AMWs in villages lacking a Midwife and supports such as financial resources and transportation represents an opportunity for task shifting, so AMWs can provide informal curative care. Ferrinho et al (2012) identified informal provision of care as informal task shifting in his study of the experiences and opinions of care provided by community-level health workers to HIV/AIDS patients in Mozambique and Zambia.(226) In rural and remote areas of many LMICs (e.g., Tanzania, Malawi, Kenya and Zambia), nurse auxiliaries and CHWs provide curative care to patients, in the absence of skilled health professionals, as an ad hoc response to address the needs rather than as an explicit health policy.(87, 160, 226, 227) On the other hand, without basic health system support structures such as referral support and protection for health workers, informal task shifting can pose risks not only to health workers but also to patients.(226)

This PhD research identified a mismatch between the expectations of the community and the expectation of other health care providers as to how AMWs should be performing their role. This discrepancy between community demands for curative care and the permission boundaries set by the township level health policy makers creates a challenge for AMWs. Hadley and Maher, in their review of CHWs' involvement in tuberculosis control programs in developing countries, showed that enabling CHWs to undertake a curative role and thus fulfil community demand enhanced their reputation,(139) and led to better retention of CHWs and increased their social status.(85) Many AMWs in the study also articulated that providing curative care engendered trust from the community, despite this

being a proscribed activity. However, some AMWs spoke about risks and frustrations of taking care of emergency obstetric cases. A study in Nepal using community health volunteers to provide preventive and curative care to women in rural and remote areas similarly found that health workers experienced fear and frustration when facing emergency conditions, due to lack of specific training.(189) Myanmar's MOHS must also reconsider the voluntary status of AMWs, as it is unfair to allocate responsibility for providing curative care without specific skill development and policy permission which poses risk both to patients and AMWs.(82, 228) The *Myanmar Health Workforce Strategic Plan 2012–2017* mentioned that bridging courses to upskill AMWs as fully qualified paid midwives are in development; the tasks and skills that should be given to AMWs is currently a matter of debate within the Ministry.(66) In this regard, there is evidence that lay maternal health workers with similar educational backgrounds to AMWs have been able to deliver basic emergency obstetric care to mothers and showed better pregnancy outcome in internally displaced communities in Eastern Burma/Myanmar following the implementation of systematic and rigorous skill-based training, supervision and support structures for referrals.(229, 230) Giving AMWs skills-based training and allowing them to prescribe essential medicines to prevent emergency obstetric situations can benefit the health of mothers in hard-to-reach areas as well as gaining trust by the community and meeting their expectations.(53)

As AMWs are already embedded within the community, other possible way that AMWs role could be more oriented to functions other than managing childbirth itself and taking risks may include connecting mothers with health facilities, promotion of supervised delivery, improving screening and treatment during pregnancy, distribution of commodities for home use that could make unavoidable community births safer (for example

misoprostol), and a greater focus on routine care in the immediate postnatal period. This shift to a safer role through linking them to SBAs and facility based deliveries was successful with community midwives in Malaysia and TBAs in China, contributing to a reduction of the MMR in both countries.(20, 231) Therefore, this may be an alternative strategy to ensure the indemnity of AMWs and at the same time achieve a better skilled birth attendance coverage in rural areas by linking mothers to Midwives for delivery. However, transforming their role will need significant investment and preparation within the health system: building infrastructure, training health personnel, improving referral pathways and establishing quality referral facilities.(231)

As AMWs are often alone in hard-to-reach rural areas without any lifesaving drugs and support infrastructure, equipping them with the knowledge and skills to identify danger signs during pregnancy, childbirth and newborn care and make early referrals is vital.(39) However, the research (chapter five) showed that AMWs' ability to identify danger signs is extremely low. Although 80% of the AMWs were using clean delivery kits and performing active management of the third stage of labour, only 41% were using preventive misoprostol. The research showed that the determining factors for better knowledge and skills were refresher training and adequate supervision.(1) In this regard, a study conducted in Guatemala on transforming traditional TBAs into skill-based health care providers using a training module involving TBAs in planning and implementation, showed that TBAs were able to increase their basic obstetric knowledge and identify risk cases for referrals.(232) Other researchers suggested that practical skill-based training with regular refresher training was effective in improving the danger sign detection performance of lay maternal health workers in hard-to-reach areas of eastern Myanmar.(190, 229)

The research findings showed that adequate supervision was an important factor for improving the knowledge and skill of AMWs. This confirms the results of a study of 287 AMWs in Myanmar's Kyaukse district, which showed that supervision was positively related to good performance and knowledge of AMWs.(76) However, Hill et al.'s review of supervision of CHWs in LMICs found that supervision frequency alone did not improve the performance of health workers; satisfaction, motivation, problem solving and a supervision checklist were needed as part of supportive supervision.(147, 198, 233) The PhD research examined supervision in terms of frequency and satisfaction, and found that 30% of AMWs had less than six supervisory sessions and 28% were not satisfied with their supervision.(1) Some of the AMWs interviewed as part of the research also stated that they had little or no supervision. Unfortunately, Midwives, who are the immediate supervisors of AMWs in Myanmar, often lack the time and capacity to supervise due to their own heavy workloads.(33, 74, 77) In addition, other maternal and child health program reviews noted that lack of supervision guidelines and financial support needed for travel were major barriers to MW supervision.(34, 76) AMWs often reside in hard-to-reach rural areas; geographical distance from a supervisor can often lead to taking risks in fulfilling community expectations.(83) Global evidence reinforces that supervision is crucial, especially for CHWs who are distant from program administrators and supervisors.(83-85, 224) An approach used by a family planning program in Guatemala is group supervision, in which multiple providers come together to supervise a group of CHWs undertaking activities such as data collection, problem solving and training; this was identified to increase geographical coverage by 26% over standard supervision with less time and cost.(198) A systematic review of CHWs and use of mobile technology stated that supervision mechanism for CHWs can be enhanced through use of mobile technology in provision of real time advise, sharing

information and obtaining better communication and feedback between supervisors and CHWs.(234) Therefore, innovative mechanisms of supervision, such as group supervision and use of mobile technology, may be possible alternatives for AMWs in remote areas of Myanmar.

8.1.2 Potential for task shifting essential maternal interventions

Chapters four and five describe the current situation of AMWs and demonstrate that they are well trusted and embedded within the community and the health system, but their knowledge and skills in provision of maternal and newborn care are inadequate.(1) As discussed, regular skill-based training and supportive supervision may address some of these deficits. Chapter six further reports on the potential for task shifting of essential maternal interventions to AMWs. Although the current AMW manual does not permit AMWs to give any medication to mothers, in practice AMWs are providing some oral medications to mothers and villagers.(2) The main sources of drug supply were from MWs and local drug shops. The findings also showed that this informal task shifting is occurring mostly in villages where MWs are often inaccessible or are not present. **Community perceptions of task shifting oral medication such as vitamin supplementation during pregnancy, misoprostol to prevent PPH immediately after child birth and providing oral antibiotics during puerperium were positive.(2)** Global evidence shows that CHWs are able to provide oral vitamin supplementation, misoprostol to prevent PPH, and antibiotics to children, and have shown that this has increased coverage and reduced neonatal and perinatal mortality and maternal morbidity.(43, 48, 50, 147, 235) Although informal task shifting may serve as a template for task shifting, without appropriate policy endorsement, support structures, training guidelines and supervision, it may harm the AMWs' credibility

within the health system and pose threats to the health workers to and from whom the task is shifted.(116, 143) This PhD research makes an important contribution towards task shifting in Myanmar, as both community and health system perceptions of acceptability and feasibility of the interventions were taken into account before their implementation.(2) Therefore, task-shifting health service tasks to AMWs for care during pregnancy, childbirth and the first weeks after childbirth can offer expanded access for mothers who deliver outside of health facilities.

8.1.3 Prevention of postpartum haemorrhage

The findings in chapter seven relate to two approaches to prevention of PPH, the leading cause of maternal deaths in Myanmar. Several alternatives to injectable oxytocin for preventing PPH are being implemented or trialled globally. These are designed to overcome two challenges: maintaining the cold chain for oxytocin storage, and the need for someone trained in giving injections to be available to administer the oxytocin.(222) Provision of oral misoprostol and inhaled oxytocin (IHO) are interventions suitable for distribution at the community level in countries where death due to PPH is prevalent and a high proportion of women still give birth at home. The research findings showed that it is feasible and acceptable for both interventions to be implemented by AMWs in Myanmar.(3)

The research findings showed that oral misoprostol is acceptable and feasible, as the drug has been used by Midwives and AMWs in Myanmar and is becoming widely available thanks to donors and government supply.(3) As inhalers are not commonly used, community perception will tend to favour the more established misoprostol. Global evidence also suggests that misoprostol is safe and effective for use by CHWs in settings where oxytocin is not accessible.(49, 122, 235) Midwives and health care providers are also

willing to provide misoprostol to AMWs as a necessity to prevent PPH. However, the study findings highlights that without clear policy endorsement, this will still occur in the form of informal task shifting.(3) Policy-level commitment has previously been highlighted as essential to moving evidence-based interventions like misoprostol into practice.(113) The research findings showed that it was possible to shift the task of provision of misoprostol to AMWs following systematic preparation such as stakeholder engagement, training, ensuring drug availability and systematic documentation of the process. The research findings have been used as evidence to inform national decision-making. Department of Public Health, MOHS, together with the 3MDG fund, is developing a guideline for use of misoprostol by AMWs, and a pilot study to implement the distribution of misoprostol by AMWs (on which I am a principal investigator) in a particularly hard-to-reach state (Chin State) is underway. The research findings were instrumental to the pilot provision of misoprostol by AMWs in Chin State.

Inhaled oxytocin is a heat-stable, dry, inhalable powder form of oxytocin which requires neither injection by a health care provider nor refrigeration. It has the potential to address many of the limitations of gold standard injectable oxytocin.(236-238) Unlike IHO, many new products often overlook the users' needs and contexts, and subsequently face challenges in introduction in low-resource settings irrespective of their potential advantages.(237, 239-241) For example, implementation of oxytocin in Uniject^{TM}, a self-contained injection device, has stalled due to its high product price relative to other uterotonics and incompatibility with high-volume demand in resource-constrained LMIC markets.(240) With this background, a multi-country study was conducted in India, Ethiopia and Myanmar to understand the barriers and facilitators to the efficient introduction and

uptake of IHO in resource-poor settings. The Myanmar component was part of the PhD research. In Myanmar distribution at community level (where cold storage infrastructure is lacking) was shown to be feasible, as was education and distribution of the product through MWs and AMWs. However, as the drug is still in the development stage, health care workers were interested in the safety and efficacy profiles of the final product. If IHO is proven to be significantly more efficient than injectable oxytocin for use in real life settings, further investment are still needed to promote the drug to providers along with provider training and community education.

8.2 Implications of the findings for policy and practice

The findings presented in this thesis have important policy and practical implications for AMWs in Myanmar. As noted several times herein, maternal mortality is high and more prevalent in rural than urban communities in Myanmar. The health system has long faced human resource constraints with major difficulties in recruiting and retaining health workforce, particularly in rural and remote areas.(42) Task shifting of essential maternal and newborn interventions to less-skilled health workers is a strategy to address the human resource shortage that hinders reduction of maternal mortality in many LMICs.(50, 133, 147, 183) Therefore, task shifting to AMWs is a promising option for rural and remote areas of Myanmar where skilled birth attendant rates are low and MMRs are high. This section will discuss the health system factors that are crucial for effective implementation of task shifting interventions to AMWs in Myanmar.

8.2.1 Policy and governance

The new National Health Policy commits the Government of Myanmar to attainment of universal health coverage through greater investment in reaching the poor and most in

need through the township health system and through better provision of an essential package of health services.(61) Therefore, this PhD study is timely in showing how MCH can be improved for rural and remote people through task shifting of essential care to AMWs. However, achieving this goal will need significant policy commitment, preparation and investment.

Future task shifting will require the Government of Myanmar to develop national guidelines on drug procurement, policies on drug distribution and drug use by AMWs, and a system of registration of essential drugs for task shifting. As task shifting to AMWs is very likely to, and should, involve use of antibiotics and misoprostol, the Government must ensure that all relevant professional associations such as the Myanmar Nurses Council and Myanmar Obstetrics and Gynaecological Association are involved in the policymaking process. A study in Kenya showed that a main factor hindering the use of antibiotics by CHWs was resistance from clinicians and high-level policy actors.(242) This suggests that coordination and collaboration with various stakeholders involved in AMW programing such as MOHS, international donor agencies, international and national NGOs and UN agencies, professional organisations and all other relevant stakeholders is crucial. A policy brief on task shifting in MCH care for Myanmar could enhance the process of task shifting. In addition, a national evaluation of the AMW program would benefit future programming and resource mobilisation for AMWs.

8.2.2 Training

The study findings highlight that training is an important factor for building the knowledge and skill of AMWs as well as for future task shifting.(1-3) These results align with those of studies reporting successful task shifting to CHWs, which have consistently

highlighted that appropriate training and supportive supervisions are essential.(48, 79, 141, 243, 244) The latest AMW training manual was developed in 2015; it is not module based and contains large amounts of information which is hard for AMWs to absorb.(2) Although the current manual includes revised content relating to current practices like prevention of PPH and newborn care practices, the method of training has not changed due to constraints on human resources and budget at central level. Shifting new tasks will require specific training for each task, as well as their incorporation into the training curriculum. Therefore, review of the current training manual and methods of training is required, and a new description of the role and responsibilities of AMWs must be added to the manual. AMWs will further benefit if the training is skills based, with refresher training at regular intervals. As the township health departments are responsible for training AMWs, establishment of training teams and training of trainers are needed, with a standardised curriculum and skill-based adult learning methods.

8.2.3 Career development pathway for AMWs

With the MOHS' ultimate aim of universal access to institutional based childbirth with skilled birth attendants, timely strategic planning is needed to attain smooth transition of the large cadre of AMWs into the health system. Myanmar's Health Workforce Strategic Plan 2012–2017 mentions development of bridging courses to upskill AMWs to become fully qualified Midwives.(66) This upskilling will require planning and support to ensure that AMWs serving in hard-to-reach areas can benefit. Becoming a Midwife may require attainment of the 10th Standard[4]in tertiary education, which may represent a barrier to the upskilling of AMWs who often have a much lower level of education. The findings in the research showed that 41 % of the AMWs had secondary and lower education.(1) A study

[4] Current selection criteria to become a Midwife require a matriculation (10th standard) pass certificate.

done by Wangmo et al demonstrated that AMWs with long duration of service who had lower level of education were more like to work as an AMW and serve the community for longer time period.(40) Innovative career development plans for AMWs with secondary and lower education must be considered. Other possible alternative strategies for linking AMWs role safely within the health system in the interim period would be through task shifting of essential maternal interventions during pregnancy, childbirth and postpartum period along with promotion of supervised delivery and preparing the system for institutional delivery.

8.2.4 Supervision

Task shifting of new skills to AMWs requires a strong supervision and support structure to ensure that new skills are provided correctly and maintained. As Rowe et al. stated, supervision increases the motivation and performance of health workers like AMWs in low-resource settings.(245) The JIMNCH review in Myanmar and the study findings showed that lack of supervision can create unintended consequences such as AMWs performing beyond their approved roles.(3, 34) Strong system support is also required to ensure that supervisors (Midwives) have the necessary resources (time and transport) and guidance (clear guidelines about what and how to supervise). Township-level supervision teams (Township medical officer, township health nurse and township health assistant) could contribute to supervision of AMWs which may reduce the workload of busy Midwives.

8.2.5 Drugs and supplies

Almost all AMWs are provided with an AMW kit after their six months of training by the township health department. AMWs' kits are essential tools for performing their main function of ensuring safe and clean delivery for pregnant women. The content has varied over time and with funding. It usually contains birthing kits (a plastic sheet, clean razor

blades, soap, clean cord tie and pictorial instruction on how to deliver a child), a stethoscope, thermometer, sphygmomanometer, antiseptic solutions and drugs such as paracetamol and ferrous sulphate.(40) However, kit replenishment is not a regular occurrence, but required for optimal AMW functioning.

Ensuring an adequate and consistent supply of drugs (including misoprostol and antibiotics) with proper instructions for administration is essential for task shifting. Free availability of drugs without prescription is a double-edged sword for the AMWs: it means drugs can be delivered to members of the community as needed, but the quality of the drugs cannot be assured, and this, and usage without proper knowledge of the dose and side effects, pose threats to users. Clear guidelines on use and distribution of essential quality drugs for AMWs are required urgently.

8.2.6 Financing and incentives

Although AMWs are volunteers rather than employees, and thereby receive no salary or related benefits (however, providers of home birth services in Myanmar usually receive commodities such as rice, food and clothing and sometimes cash for their services).(40) Their recruitment and training for health service delivery is expensive. The average cost of training an AMW was estimated at US$ 700–$1135 (in 2013), excluding other indirect costs such as travel and supervision.(39, 78) Refresher training was estimated to cost between US $150 and $167 per AMW, and annual replenishment of the AMW kit and drugs between US $30 and $50.(39, 78) Return on investment is important for a health system in a low-resource country such as Myanmar.

Adding more tasks to the role of AMWs through task shifting may require review of the volunteer role played by AMWs, as it is difficult to rely on the work of volunteers.

Formal remuneration for the services AMWs provide may need to be considered to minimize out-of-pocket payments by the community and reduce AMW attrition.(40) The JIMNCH review also highlighted that financial remuneration of AMWs needs to be aligned with their role and responsibilities.(34) Sustained and standardised financial incentives are needed; for specific task shifting interventions, incentives could be in the form of travel expense remuneration along with regular supply and replenishment of drugs.

8.2.7 Service delivery and referral

Task shifting may result in changes to the role of the health care providers from whom the task is shifted and to whom it is shifted. In the case of AMWs, the tasks that are to be shifted are mostly preventive and involve oral administration of medications. Ensuring that the community understands the importance of these oral drugs (through community mobilisation and mass media education) will enhance the status of AMWs within the community.

Consultations about the providers' views on task shifting are an important step in task shifting. In the study findings, providers' held positive perceptions towards task shifting of the three maternal interventions: oral vitamin supplementation during the antenatal care period, provision of misoprostol to prevent postpartum haemorrhage after childbirth, and the use of oral antibiotics for puerperal sepsis during the postpartum period.(2) Task shifting is likely to increase AMWs' job satisfaction, because providing misoprostol to prevent PPH – a major risk in childbirth – will increase their prestige in the community, as will providing life-saving antibiotics for treatment of puerperal sepsis. Midwives' support in promoting the importance of misoprostol during ANC consultation with pregnant women will further increase AMWs' social recognition. An effective referral pathway during the ANC period

needs to be planned and formalised, in consultation with the Midwives, alongside task shifting. As misoprostol is a drug that can be also used for abortion, strict legal protection mechanisms for use during pregnancy must also be in place.

8.2.8 Health Information System

The PhD research findings show that AMWs are the first contact persons for pregnancy and immunisation services for mothers and children in rural hard-to-reach areas of Myanmar.(2) Service data are recorded in personal notebooks, and are not used for community health data recording. In townships receiving 3MDG funding, data recording training for AMWs occurred in 2015.(193) Supporting AMWs to perform better MCH data collection will improve community-level data from hard-to-reach communities, which is often missing from national datasets.(78) Support and proper reporting forms are needed to ensure that new task shifting drugs and guidelines are in line with the current national health management information system to avoid parallel documentation of new interventions.

8.3 Strengths and limitations of the study

The PhD research had both strengths and limitations. Strengths include the foregrounding of community and the employment of both qualitative and quantitative methods. Limitations include limited geographical coverage and non-random sampling during data collection.

Many of the implementation strategies for task shifting interventions are planned at the national policymaking level with involvement of various stakeholders. Although policy makers often involve the health workers from and to whom the tasks are to be shifted, they rarely involved the communities in which implementation is proposed. This was the first

research to explore community perspectives on task shifting before actual implementation in a LMIC country – a significant strength.

The study employed a mixed methods approach, which enriched the study in two ways. First, the qualitative study improved understanding of the role of AMWs within the township health system and AMWs' relationship with the community and health care providers. It enabled exploration of the potential of task shifting specific maternal interventions from both the communities' and providers' perspectives, including those to whom (AMWs) and from whom (Midwives) the task will be shifted, in a township setting.

Second, the quantitative research confirmed the qualitative findings about the practice of oral drug administration by AMWs on antibiotics, misoprostol and other vitamin supplementation. It also revealed the extent of the limited knowledge and practice of AMWs regarding danger signs during pregnancy, childbirth, postpartum and newborn care periods, which is important for training AMWs to perform further tasks.

The study had several limitations. The study townships were purposively selected based on their "hard-to-reach" characteristics, and as such findings may not be representative of other townships in Myanmar. However, the three townships studied quantitatively were selected, using local knowledge, to capture the geographical diversity within Magwe district, offsetting the potential loss of generalisability. A national-scale evaluation with systematic random sampling would have enabled assessment of the study's reliability and the generalisability of the findings. This was not possible as there was limited time and funding for implementing a national scale study. Within the limit, a township census (inclusion of all AMWs in the study township) approach was considered as an alternative option.

Data collected about the relationships between communities, health care providers and AMWs may have been affected by social desirability bias. The study objectives were explained briefly before each interview; social norms may have encouraged interviewees to state that all providers of health care were in harmony and give positive answers about AMWs' role and task shifting. To minimise this bias, all the interviewees were informed that the information obtained will be confidential and anonymity was ensured. Also the interview guide allowed the interviewers to be flexible with a broad opening of barriers and enablers towards the relationships and their opinions.

Practices of AMWs were based on self-reports rather than observed performance, which may have led to over-reporting. However, even if over-reporting occurred, study findings show that AMWs have inadequate knowledge and skills. Future studies of the actual practice of AMWs would enrich understanding of the quality of care that AMWs provide with more accuracy and validity.

The studies focused on maternal interventions around the time of birth (vitamin supplementation during pregnancy, provision of misoprostol to prevent PPH, and provision of antibiotics for puerperal sepsis), and excluded other feasible maternal and newborn interventions such as improving access to contraception for all women of reproductive age and newborn care practices. Future researchers could explore the feasibility and acceptability of task shifting family planning, and other newborn tasks to AMWs.

8.4 Recommendations

The research findings presented in this thesis demonstrate that although mismatched expectations exist, the embeddedness, trust and strong relationships of AMWs within the community needs to be utilised as a strength in future task shifting of maternal

and newborn interventions. Implementation of task shifting to AMWs is recommended as an interim conjunctive strategy in line with all other measures in reduction of maternal mortality in Myanmar such as institutional delivery and access to skilled birth attendants.

A national-scale evaluation of the AMW program is recommended to update the role and tasks of AMWs and to set the limit of the role that can be performed by AMWs, taking their education and voluntary status into consideration.

Auxiliary midwives are currently taking risks in emergency situations due to a lack of support and proper training. AMWs need clear instructions and proper skill-based training to ensure that emergency situations are handled in the best possible way. It is recommended that adequate resources are available for ongoing refresher training, enabling AMWs to effectively undertake their roles and fulfil their responsibilities with confidence, including applying the new skills required by task shifting. Evaluation of the AMW training program, including review of the training curriculum and teaching methodologies, is a priority. Also, further research on effective models of training to improve practice should be carried out.

The study findings highlighted that supervision is an important element in AMW knowledge and skill development. Ensuring financial and infrastructure support for AMWs' supervision by MWs and the township health system is highly recommended. In addition, the current supervision program for AMWs needs to be redesigned to meet the basic needs of AMWs through innovative supervision mechanisms.

The study findings showed that there is potential for task shifting if the following health system level barriers were addressed. Policy commitment and approved guidelines

for implementation of task shifting activities are crucial. Policy-level commitment and written permission from the MOHS for implementation of task shifting interventions are strongly recommended. In this regard, development and endorsement of guidelines and standard operating procedures for AMWs – that specify clear roles and responsibilities, cover administration and distribution of drugs, and outline a skill-based training curriculum and supportive supervision structures – is essential.

8.5 Directions for future research

The findings presented in this thesis show that AMWs are highly accepted health care providers within the community and the health system in Myanmar, and that task shifting a package of maternal interventions to AMWs, with proper training and supportive supervision, is feasible. Future research should clearly document the process of implementation of task shifting MCH interventions in Myanmar to recognise the lessons learned and inform future global guideline initiatives.

The research findings showed that AMWs' knowledge of the danger signs and their reported practices with respect to safe childbirth were suboptimal. The qualitative study also showed that AMWs found management of emergency situations during childbirth very difficult due to the lack of support infrastructure. The role of supervision in task shifting is another area for further research: the study findings show that supervision is important for skill building and performance. Research into the barriers to and enablers of AMWs' supervision by MWs and township level supervisors would be valuable.

This study was limited to maternal interventions around the time of birth. However, global evidence suggests that CHWs with skills equivalent to AMWs are effective in providing counselling and education and provision of contraception and thereby improving

the health of mothers and children(103). WHO guidelines recommend that AMWs provide oral and injectable contraception using a standard syringe (43). Therefore, Future research study on feasibility and acceptability of task shifting contraceptives (both oral and injectable using a standard syringe) by AMWs is recommended.

The study findings show that a package of MCH interventions involving oral administration of medications (oral supplementation during pregnancy, misoprostol for PPH, and antibiotics for puerperal sepsis before referral) was feasible and acceptable to AMWs in Myanmar. However, PPH remains the leading cause of maternal mortality in Myanmar, and the drive for task shifting the provision of misoprostol has advanced more rapidly than the whole package of interventions. Thus, pilot testing should be carried out in Myanmar to see whether a package of interventions is more cost-effective than one intervention.

8.6 Conclusion

Global efforts to end maternal mortality can be accelerated by equipping CHWs with proven interventions through task shifting. The community embeddedness and acceptance of AMWs, a large national cadre serving mothers and children in rural and remote areas of Myanmar, provides an enabling environment for task shifting selected maternal interventions. However, effective task shifting to AMWs requires clear policies, enhanced role definition, training, supervision, incentives and indemnity. Increasing the professionalisation of AMWs will support their transition into certified midwives and progress Myanmar's goal for every pregnant woman to have a skilled birth attendant assist at delivery.

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Appendix A: Published Articles

A1: Paper on Determinants of Knowledge and Practice

A2: Paper on Potential Task shifting

A3: Paper on Prevention of PPH using misoprostol

Appendix B: Characteristics of respondents in the FGDs and IDIs

Appendix C: Questionnaire and Guides

C1: Guides and questionnaires used for the AMW task shifting study (English)

C2: Guides and questionnaires used for the AMW task shifting study (Myanmar)

C3: Guides used for the Inhaled Oxytocin Study (English)

C4: Guides used for the Inhaled Oxytocin Study (Myanmar)

Appendix D: Ethical Approvals and permission letter

APPENDIX A
BMJ Open

Determinants of knowledge of critical danger signs, safe childbirth and immediate newborn care practices among auxiliary midwives: a cross sectional survey in Myanmar

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ABSTRACT

Objectives The re-emergence of community-based health workers such as the auxiliary midwives (AMWs) in Myanmar, who are local female volunteers, has been an important strategy to address global health workforce shortages. The Myanmar government recommends one AMW for every village. The aim of this study is to investigate the current knowledge of critical danger signs and practices for safe childbirth and immediate newborn care of AMWs to inform potential task shifting of additional healthcare responsibilities.

Methods A cross-sectional survey was conducted from July 2015 to June 2016 in three hard-to-reach areas in Myanmar. Face-to-face interviews were conducted using a pretested questionnaire.

Results Among 262 AMWs participating in the study, only 8% of AMWs were able to identify at least 80% of 20 critical danger signs. Factors associated with greater knowledge of critical danger signs included older age over 35 years (adjusted OR (AOR) 2.19, 95% CI 0.99 to 4.83), having received refresher training within the last year (AOR 2.20, 95% CI 1.21 to 4.01) and receiving adequate supervision (AOR 5.04, 95% CI 2.74 to 9.29). Those who employed all six safe childbirth and immediate newborn care practices were more likely to report greater knowledge of danger signs (AOR 2.81, 95% CI 1.50 to 5.26), adequate work supervision (AOR 3.18 95% CI 1.62 to 6.24) and less education (AOR 0.44, 95% CI 0.23 to 0.88).

Conclusion The low level of knowledge of critical danger signs and reported practices for safe childbirth identified suggest that an evaluation of the current AMW training and supervision programme needs to be revisited to ensure that existing practices, including recognition of danger signs, meet quality care standards before new interventions are introduced or new responsibilities given to AMWs.

Strengths and limitations of this study

- The study presents valuable information on the current knowledge of critical danger signs and practices for safe childbirth and immediate newborn care of auxiliary midwives (AMWs) in Myanmar.
- Practices of AMWs were based on self-reported practices rather than actual observed performance, and over-reporting can be a problem with this approach. Moreover, composite variables were created for analysis, which could have led to misclassification bias.
- Low level of knowledge of critical danger signs and reported practices for childbirth suggest that an evaluation of the current AMW training and supervision programme needs to be revisited to ensure that existing practices, including recognition of danger signs, meet quality care standards.

INTRODUCTION

The re-emergence of the role of community health workers (CHWs) in healthcare provision has been an asset to the global health workforce.[1] Around the world, different types of CHWs have emerged that are adapted to the need of individual healthcare systems and country contexts.[2] CHWs are defined as 'community members who work almost exclusively in community settings and who serve as connectors between healthcare consumers and providers to promote health among groups that have traditionally lacked access to adequate care'.[3] Most CHWs working in maternal and child health are women.

Auxiliary midwives (AMWs) are one of the largest voluntary health cadres in the country and have been trained by the government of Myanmar since 1978.[4] They are local women with secondary level education who are willing to serve their own community with maternal and child healthcare service and who work without financial incentives. The aim of producing AMWs in the early years of the programme was twofold: to fill the gap in

the availability of skilled birth attendants (midwives) who were not accessible in remote rural villages of the country and to phase out traditional birth attendants as care providers. AMWs provide education and counselling to pregnant women on antenatal care, immunisation, nutrition, birth preparedness, breast feeding and postnatal care. They are also equipped with skills to conduct normal deliveries, identify pregnant women with greater risks of complication and facilitate early and timely referral.[4 5]

Myanmar has a critical shortage in human resources for health; there are only 14 health providers with midwifery skills (doctors, nurses and midwives) per 10 000 persons. This is significantly less than 23 per 10 000 persons recommended by the WHO to achieve the 80% skilled coverage for maternal and child health.[6] Although the Myanmar government recognises the need to increase the number of skilled birth attendants and the distribution of midwives, health system resources are lacking and policies to fill and sustain the human resource gap are not currently in place.[7]Task shifting is one possible option to address human resource shortages, and the Ministry of Health has revitalised the AMW programme to help extend services to 'hard-to-reach' areas.[8] The national target set by the Ministry is to have at least one trained AMW in every village by 2016.[7] The Ministry also recommends task shifting evidence-based essential interventions to AMWs to improve the health of mothers and the newborns.[9]

Currently, AMWs' training lasts for 6 months, including 3 months of theoretical learning and 3 months of practical skills provided by township health departments. The trainings are conducted under the guidance of the Ministry of Health.[7] Within the current 'Three Millennium Development Goals Fund' (3MDG) for Magwe region, new and refresher trainings have been undertaken in Gangaw, Ngape and Seitphyu townships. Refresher trainings are provided by the township-level team, which consists of the township medical officer, township health nurse and other health staff within each township and entails 3–5 days covering the critical topics relevant to AMW practice. AMWs are supervised by the midwives in their township.[10] Typically, a midwife is responsible for overseeing four to six AMWs and would visit each AMW every month to monitor performance. In practice, it is reported that many midwives are not able to regularly follow-up the AMWs for whom they are responsible.[11]

Although the number of AMWs has increased, there are few studies on AMW service provision and performance in Myanmar. Two studies conducted by the Department of Health in 2005 and 2011 reported that knowledge was low and that AMW skills were below satisfactory level. The first study included 211 AMWs from 12 townships and the second study included 287 AMWs from four townships.[12 13] These studies assessed AMWs' general maternal and child health knowledge and skills but did not focus on the critical danger signs.

Our study aimed to investigate the level of knowledge and practices specific to life-saving care for pregnant women and their newborns: recognition of critical danger signs during pregnancy and labour, clean and safe childbirth practices and immediate newborn care practices. In addition, we examined the determinants of knowledge level to inform future interventions needed to improve the care given by AMWs in Myanmar.

METHODS

Study setting

Myanmar is a country with geographically, culturally and socially diverse communities. Magwe region in central Myanmar and with a population of 3.9 million was purposively selected based on its high reported maternal mortality ratio (344 per 100 000 live births) and infant mortality rate (84 per 1000 live births).[14 15] The region contains various hard-to-reach populations and in rural remote areas most of the birth takes place at home (nationally reported to be 72%).[16] Within each township, villages were identified as hard-to-reach and non-hard-to-reach according to the 3MDG fund criteria (a score of 0–12 is accorded based on travelling time to the nearest facility, mode of travel, transport charges and roads affected by seasonal variation).[17] Three townships in Magwe region (Gangaw, Ngape and Seitphyu) were purposively selected to represent the geographical diversity of the region and because they have high maternal and infant mortality.

Study design and participants

A cross-sectional survey using interviewer administered pretested questionnaire was conducted between July 2015 and June 2016. A list of practising AMWs was obtained from the township health departments and checked through discussions with the township medical officer. All practising AMWs in the three townships were recruited for interviews. AMWs who were not in the township and those who could not come to the rural health centre (RHC) due to bad weather or having a very young child at the time of the survey were not able to participate. A total of 262 AMWs participated in the study out of 308 invited to participate (85%).

Data collection methods

Data were collected using a pretested semistructured questionnaire in Myanmar language. Five trained interviewers conducted face-to-face interviews with AMWs after obtaining written, informed consent. Interviewers were not employed by or associated with the health system. Completing the questionnaire took approximately 30–45 min per interview. The questionnaire consisted of five main sections including socioeconomic and demographic characteristics, training and supervision of maternal and child health services, knowledge of risk and danger signs, practice of antenatal, birth, postnatal and newborn care and barriers and facilitators for provision of services. In order to reduce the recall bias, all the knowledge and practice questions were based on 6 months period before the data collection. Interviews were conducted in the closest Maternal and Child Health

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Centre or RHC to each AMWs' place of residence. All the participants were reimbursed with the actual cost of travel to the place of interview plus a daily allowance to cover meal costs (3000 kyats, equivalent to US$2.5).

Data management and analysis

Data were coded on the day of the interview by a different member of the research team to check for incompleteness and inconsistency. There were no missing data. Coded data were double entered into the software Epi Data V.3.1 by two research assistants separately. Double data entry was then checked for consistency by the principal investigator and any discrepancies addressed through discussion with the research team. The principal investigator analysed the data using STATA V.13.1.

Binary and categorical variables were summarised by proportions and tabulations. Continuous variables were summarised using mean, SD and range. Differences between groups were assessed using χ^2 tests and/or univariable logistic regression with 95% CI. The effect of each of the independent variables was adjusted for all other independent variables in a multivariable logistic regression model. Variables were included in the model if they were known, or hypothesised, determinants of our outcomes of interest.

Study measures

Responses to the question 'when was the last refresher training received' was coded as 'less than a year' if the participant indicated training had been received more recently than 2014 and as 'no training or more than 1 year' if refresher training had not been received or received prior to 2014. The number of supervision visits in the last 6 months and the question on satisfaction of supervision were taken to create the adequate supervision variable as reported by AMWs in the study. The question on 'how many times were you supervised in the last 6 months' was categorised as 'less than six times or no supervision received' and 'six times and more'. Another question explored their satisfaction with the received supervision and was asked as: 'Are you satisfied with your supervision?' Responses were re-categorised into a binary variable as 'satisfied' for responses 'very satisfied', 'satisfied' and 'just satisfied' and into 'not satisfied' when responses included 'not very satisfied 'and 'not satisfied at all'. A composite variable was constructed to describe the adequacy of supervision. If the number of supervisions was six times and more in the last 6 months and the satisfaction question was categorised as satisfied, it was considered as 'adequate supervision' and if either the number of supervision was no or less than six times or the satisfaction question was categorised as not satisfied than it was considered as 'not adequate.'

According to the latest AMW manual published in 2015, there are 20 critical danger signs: six in pregnancy, eight in childbirth and postpartum and six related to newborn care. Knowing critical danger signs is important to enable AMWs to refer mothers and newborns for timely and effective management of complications. Participants were coded as 'high knowledge' if they reported at least three pregnancy critical danger signs (out of six), four childbirth and postpartum critical danger signs (out of eight) and three newborn critical danger signs (out of six). All others participants were coded as 'low knowledge'.

A safe childbirth practice variable was constructed using responses to questions on usage of a clean birth kit and postpartum haemorrhage prevention practices. The question 'Do you normally use a clean birth kit' was coded as '1' for yes and '0' for no. Frequency of Active Management of Third Stage of Labour (AMTSL) practices were coded into a binary variable grouping those who responded 'always', 'mostly' or 'about half the time' as '1' and those who responded 'sometimes' or 'rarely' as '0'. A composite 'safe childbirth practice' score was then constructed by adding the value of these two variables (using a clean birth kit and practising AMTSL). A score of '2' was considered 'safe childbirth practice' and scores of '0' or '1' was considered 'not safe childbirth practice'. AMWs were also asked about the use of misoprostol, an intervention introduced to AMW practice in the study townships in 2015 by the Ministry of Health.

Four immediate newborn care practice questions were given a score of 1 for 'yes' responses and 0 for 'no' responses. Practices assessed were wrapping the baby for warmth, immediate breast feeding after birth, clean cord care and wiping the newborns nose and mouth with a clean cloth or gauze. AMWs who reported all four immediate newborn care practices were categorised as providing 'satisfactory newborn practices', while all others were categorised as 'not satisfactory'. AMWs categorised as providing both safe childbirth practices and satisfactory immediate newborn practices were described as providing 'safe childbirth and immediate newborn care practice'.

Ethical considerations

Ethical approval for the study was obtained from the Ethics Review Committee of Department of Medical Research, Ministry of Health Myanmar (approval number 42A/ethics/DMR/2015). Ethical approval was also obtained from The Alfred Hospital Human Research Ethics Committee in Australia (approval number Project 150/15). Written information was provided in Burmese and written inform consent was obtained. Consent forms were stored in a secure location. All activities and procedures including those for data collection, data storage and data analysis were performed in accordance with the guidelines and regulations as stated in the study protocol.

RESULTS

Characteristics of participants

A total of 214 AMWs from the non-hard-to-reach villages and 48 AMWs from hard-to-reach villages participated in the survey (table 1). The majority (82%) of AMWs lived in the villages where they were born (native village) and

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Table 1 Sociodemographic characteristics of participating auxiliary midwives (AMWs)

Variables	n (n=262)	Per cent
Townships		
Gangaw	67	25.5
Ngape	86	32.8
Seitphyu	109	41.6
Villages		
Hard-to-reach	48	18.3
Non-hard-to-reach	214	81.7
Age		
≤24 years	69	26.3
25–34 years	105	40.1
35–44 years	52	19.9
≥45 years	36	13.7
Education		
Primary	26	9.9
Secondary	83	31.7
High School	110	42.0
University/Graduate	43	16.4
Marital status		
Single	132	50.4
Married	130	49.6
Number of years lived in the village		
≤10 years	15	5.7
11–20 years	33	12.6
≥21 years	214	81.7
Number of years working as an AMW		
≤1 year	23	8.8
2–5 years	89	34.0
6–9 years	22	8.4
≥10 years	128	48.9
Any other job apart from AMW work		
AMW only	148	56.5
Manual labour	8	3.1
Farmers	64	24.4
Small business owners	37	14.1
Others	5	1.9

Table 2 Training and supervision received by participating auxiliary midwives (AMWs)

Variables	n (n=262)	Per cent
Year of first AMW training received		
1978–1999	75	28.6
2000–2009	75	28.6
2010–2015	112	42.8
Ever received refresher training		
Yes	169	64.5
No	93	35.5
Refresher training within 1 year		
No refresher training	93	35.5
One year and more	32	12.2
Less than 1 year	137	52.3
Number of supervision received within 6 months		
Less than six times	77	29.4
Six times and more	185	70.6
Reported satisfaction of supervision		
Not satisfied	74	28.2
Satisfied	188	71.8
Adequate supervision*		
Not adequate	124	47.3
Adequate	138	52.7

*Adequate supervision was defined as receiving supervision six times or more within the last 6 months and was satisfied with the supervision received.

49% had worked as AMWs for 10 years or more. The mean age of AMWs was 32 years, and 42% had secondary and below education and 16% had university level of education. Forty-five per cent of AMWs in the study worked in other jobs in addition to being an AMW.

Supervision and training

All AMWs in the study were trained for 6 months within their respective townships. More than half (57%) had been trained before 2010 and 64% of the AMWs reported receiving some refresher training (table 2). Among those who had received refresher training, 80% received the refresher training only in 2015. Seventy per cent reported receiving supervision from a midwife six or more times within the last 6 months and 60% of these AMWs reported that this supervision was satisfactory.

Knowledge of critical danger signs

Nearly all AMWs (91%) knew the recommendation of four antenatal visits with a skilled attendant during pregnancy and 96% knew the recommendation of three postnatal visits within 14 days of birth. Regarding critical danger signs, AMWs were more knowledgeable about newborn (77%) compared with antenatal (58%) and birth and postnatal critical danger signs (54%) (table 3). During the antenatal period, vaginal bleeding, convulsions/fits and severe headache with blurred vision were the most frequently reported critical danger signs. During childbirth and postpartum, the most commonly reported danger signs were bleeding, placenta not expelled 1 hour after birth of the baby and convulsions/fits. Severe abdominal pain, fast and difficult breathing, fever and too weak to get out of bed were the least reported. Although knowing all 20 critical danger signs is an expected AMW competency, only 8% of participants knew 80% or more of these danger signs and only 34% of participants knew at least half of the critical danger signs in each category.

APPENDIX A

Table 3 Knowledge of critical danger signs* for pregnancy, birth, postpartum and newborn care among participating auxiliary midwives (AMWs)

Knowledge of critical danger signs	n (n=262)	Per cent
Pregnancy (six items)		
Vaginal bleeding	214	81.6
Convulsion/fits	152	58.0
Severe headache with blurred vision	152	58.0
Fever and too weak to get out of bed	134	51.2
Severe abdominal pain	62	23.7
Fast and difficult breathing	63	24.1
Knowing three or more critical danger signs during pregnancy	151	57.6
Childbirth and postpartum (eight items)		
Not in labour within 6 hours of water breaking	141	53.8
Labour pain (contractions) continue for more than 12 hours	105	40.1
Heavy bleeding after childbirth (pad/cloth soaked in less than 5 min)	116	44.3
Bleeding increases	189	72.1
Placenta not expelled 1 hour after the birth of the baby (retained placenta)	152	58.0
Convulsion/fits	156	59.5
Fast and difficulty breathing	51	19.5
Fever and too weak to get out of bed	52	19.9
Knowing four or more critical danger signs during birth and postpartum	142	54.2
Newborn (six items)		
Difficult breathing (over 60/min or less than 30/min)	183	69.9
Fits or convulsions	156	59.5
Fever	161	61.5
Feels cold (cold body temperature)	117	44.7
Bleeding from umbilicus or pus and redness around the umbilicus	202	77.1
Poor or no response to breast feeding	172	65.7
Knowing three or more critical danger signs in newborns	202	77.1
AMWs who showed consistent high knowledge of critical danger signs (at least three danger signs in antenatal and four in childbirth and postpartum and three in new born periods)	89	34.0

*As defined in the 2015 Myanmar AMW manual.

Safe childbirth and immediate newborn care practices

The main tasks of AMWs are to perform normal deliveries and to identify and refer high-risk pregnancies and women and newborn showing danger signs to the nearest health facility. On average, AMWs in this study provided antenatal services to four pregnant women, childbirth services to two women and postnatal services to four women in the past 6 months. Although labour monitoring using partograph was included in the AMW manual and is widely recommended as an important tool for the management of labour, only one respondent answered 'yes' to ever using a partograph. In this study, 84% of AMWs reported normally using a clean birth kit (table 4). Eighty two per cent of AMWs self-reported of conducting AMTSL. However, only 41% of AMWs reported providing misoprostol after birth to prevent postpartum haemorrhage. Among those who used misoprostol, 75% used two tablets and 25% used only one tablet (compared with the recommended three tablet dosage). Only 31% of AMWs followed all four immediate newborn care practices for a normal birth. All six practices of safe childbirth and immediate newborn care were conducted by only 74 (28%) of AMWs in the study (table 4).

Determinants of high knowledge of critical danger signs

Using multiple logistic regression analysis and after adjusting for confounders, variables that were strongly associated with high knowledge of critical danger signs were age 35 years and over, receiving refresher training within 1 year and adequate supervision. AMWs that are older (35 years and over) were 2.19 times more likely to have higher knowledge of critical danger signs compared with AMWs aged less than 35 years (p=0.054). AMWs who had received refresher training within 1 year were 2.20 times more likely to have better knowledge of the critical danger signs than those who

Table 4 Proportion of auxiliary midwives (AMWs) reporting specified childbirth and newborn care practices

Reported practices	n	Percentage
Childbirth practices (two items)		
Use a clean birth kit	219	83.6
Perform Active Management of Third Stage of Labour	216	82.4
Performing both practices for clean and safe childbirth	209	79.8
Immediate new born care practices (four items)		
Warming (wrapping the baby to keep warm)	222	84.7
Breast feeding at once (immediately)	181	69.1
Clean cord care	152	58.0
Wipe nose, mouth of newborn with clean cloth or gauze	191	72.8
Performing all the immediate new born care practices	81	30.9
AMWs who reported practising six safe and clean childbirth and immediate new born care practices	74	28.2

had received no training within the previous year (p=0.010). AMWs who reported adequate supervision were 5.04 times more likely to have higher knowledge of the critical danger signs compared with those who did not receive adequate supervision (p<0.001) (table 5).

Determinants of safe childbirth and immediate newborn care practices

Multiple logistic regression reveals that having high knowledge of critical danger signs and reported adequate supervision were positively associated with practicing clean and safe childbirth and immediate newborn care (table 6). AMWs with high knowledge of the critical danger signs were 2.81 times more likely to practice safe childbirth and immediate newborn care compared with those who had low knowledge (p=0.001). AMWs who reported that they had adequate supervision were 3.18 times more likely to practice safe childbirth and immediate newborn care compared with those who reported that they had no adequate supervision (p=0.001). AMWs with above secondary level of education were 56% less likely to practice of safe childbirth and immediate newborn care practices compared with those without secondary level of education and below. (p=0.019).

DISCUSSIONS

The knowledge and practices of community health workers are important indicators of the quality of care provided by this cadre of health workers. The present study examined AMWs' knowledge of critical danger signs during pregnancy, childbirth, postpartum and the immediate newborn care period. Recognising critical danger signs is an essential prerequisite to timely referral of women and newborns to life-saving interventions. Our study revealed low knowledge of critical danger signs among AMWs in the study area. This finding is consistent with the findings of a previous study of AMWs' general knowledge including danger signs in four townships of Kyaukse, Myanmar[13] and is concerning.

In the present study, AMWs with higher age (≥35 years) were more than twice as likely to be knowledgeable about critical danger signs compared with the younger age group. However, age was not associated with practice of care. A similar study of female community health workers in rural Nepal also found that women who were older had better knowledge of maternal and child health services.[18] Our findings suggest that knowledge comes with experience and that the training needs to be strengthen to ensure that those newly engaged in the AMW work are appropriately knowledgeable.

Level of formal education was not associated with AMW knowledge in our study, but was inversely associated with provision of practice of care. We found that AMWs with higher than secondary level of education were less likely to report safe childbirth and immediate newborn care practices than those with lower education levels. This could be due to the fact that AMWs with better education are more likely to be involved in other jobs with better financial incentives compared with those AMWs who are less educated. Similar findings have been reported by a previous study on AMW performance in Myanmar, which showed that high education level was negatively associated with good performance.[19]Training is a major determinant of knowledge and practice by community health workers globally.[20] In the present study, receiving refresher training within 1 year was strongly associated with knowledge of critical danger signs. As some of the AMWs in the study conduct deliveries rarely, and to maintain good knowledge refresher trainings are important. The apparent success of more recent training (which was based on the new AMW manual) suggests that refresher trainings need to be extended to all AMWs. However, the overall low level of knowledge, even among recently trained AMWs calls for improved AMW training and support relating to the identification of danger signs. In the current AMW manual, extensive information covering a wide range of health topics may result in insufficient emphasis being

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Table 5 Determinants of consistent high knowledge of critical danger signs among 262 enrolled auxiliary midwives (AMWs)

Variables	Proportion with consistent high knowledge of critical danger signs (%, n/N)	OR (95% CI)	Adjusted OR (95% CI)	p Value
Sociodemographic characteristics				
Villages				
Hard-to-reach	13/48 (27.1)	1.00	1.00	0.84
Non-hard-to-reach	76/214 (35.5)	1.48 (0.74 to 2.98)	1.08 (0.50 to 2.34)	
Age				
<35 years	53/174 (30.5)	1.00	1.00	0.054
≥35 years	36/88 (40.9)	1.58 (0.92 to 2.71)	2.19 (0.99 to 4.87)	
Education				
Secondary and below	35/109 (32.1)	1.00	1.00	0.76
Above secondary	54/153 (35.3)	1.15 (0.68 to 1.94)	1.10 (0.59 to 2.08)	
Marital status				
Single	42/132 (31.8)	1.00	1.00	0.84
Married	47/130 (36.2)	1.21 (0.73 to 2.03)	1.06 (0.57 to 2.02)	
Number of years working as an AMW				
<10 years	41/134 (30.6)	1.00	1.00	0.27
≥10 years	48/128 (37.5)	1.36 (0.81 to 2.28)	0.61 (0.25 to 1.46)	
Any other job apart from AMW work				
AMW only	52/148 (35.1)	1.00	1.00	0.20
Additional job	37/114 (32.5)	0.89 (0.53 to 1.49)	0.68 (0.39 to 1.21)	
Training and supervision characteristics				
Refresher training				
No or 1 year and more	33/125 (26.4)	1.00	1.00	**0.010**
Less than 1 year	56/137 (40.9)	1.93 (1.13 to 3.28)	2.20 (1.21 to 4.01)	
Adequate supervision				
Not adequate	1.00	1.00	1.00	**<0.001**
Adequate	67/138 (48.6)	4.38 (2.39 to 7.99)	5.04 (2.74 to 9.29)	

Bold indicates satistical significance.

placed on the more important topics, such as danger signs. Information such as using a partograph to assess the progress of labour is included, despite only 1 out of 262 participants in our study reporting having ever used a partograph. In terms of the training, the right content and appropriate methodology that suits the trainees is an important factor to be taken into consideration.[21] Therefore, curriculum for training AMWs needs to be revisited and revised to prioritise the most relevant and practical information needed by AMWs.

Supervision is recognised internationally and in Myanmar as important for maintaining or increasing the community health workers' performance and quality of care. Previous studies illustrate that both the frequency of visits and the satisfaction of supervisee are important elements of effective supervision.[1 20 22] Our study findings show that supervision is a consistent determinant of both knowledge and practice. AMWs who reported adequate supervision were five times more likely to have higher knowledge on critical danger signs and three times more likely to provide safe childbirth and immediate newborn care practices. To accelerate effective supervision, mechanisms for frequent, quality supervision need to be incorporated into AMW training packages. Although many studies note that supervision is essential, AMWs supervision in Myanmar is low.[11 13]

A systematic review done by Hill *et al* in 2014 found that supportive supervision given by formal health workers motivates community health workers, while also building trust and confidence between the two workers.[22] Similar opportunities to build trust and confidence exist in Myanmar as supervision of AMWs is largely conducted by midwives in the local rural health centre. Although our study was limited to supervision by the immediate supervising midwife, supervision by other level of healthcare workers and community members has been effective in other settings[22–24] and should be explored in the Myanmar context.

Table 6 Determinants of safe childbirth and immediate new born care practices of 262 auxiliary midwives (AMWs) enrolled in the study

Variables	Proportion of AMWs with all six practices of safe and clean childbirth and new born care practices (n/N)	OR (95% CI)	Adjusted OR (95% CI)	p Value
Sociodemographic characteristics				
Villages				
Hard-to-reach	10/48 (20.8)	1.00	1.00	0.67
Non-hard-to-reach	64/214 (29.9)	1.62 (0.76 to 3.46)	1.20 (0.51 to 2.82)	
Age				
<35 years	47/174 (27.0)	1.00	1.00	0.72
≥35 years	27/88 (30.7)	1.20 (0.68 to 2.10)	1.16 (0.50 to 2.68)	
Education				
Secondary and below	38/109 (34.9)	1.00	1.00	**0.019**
Above secondary	36/153 (23.5)	0.57 (0.33 to 0.99)	0.44 (0.23 to 0.88)	
Marital status				
Single	39/132 (29.6)	1.00	1.00	0.24
Married	35/130 (26.9)	0.88 (0.51 to 1.51)	0.66 (0.33 to 1.32)	
Number of years working as an AMW				
<10 years	34/134 (25.4)	1.00	1.00	0.79
≥10 years	40/128 (31.3)	1.33 (0.78 to 2.30)	0.88 (0.35 to 2.24)	
Any other job apart from AMW work				
AMW only	36/148 (24.3)	1.00	1.00	0.17
Additional job	38/114 (33.3)	1.56 (0.90 to 2.68)	1.53 (0.84 to 2.78)	
Training and supervision characteristics				
Refresher training				
No or 1 year and more	33/125 (26.4)	1.00	1.00	0.50
Less than 1 year	41/137 (29.9)	1.19 (0.69 to 2.05)	1.25 (0.66 to 2.37)	
Adequate supervision				
Not adequate	17/124 (13.7)	1.00	1.00	**0.001**
Adequate	57/138 (41.3)	4.43 (2.32 to 8.45)	3.18 (1.62 to 6.24)	
Knowledge of critical danger signs				
Consistent high knowledge of critical danger signs				
No	33/173 (19.1)	1.00	1.00	**0.001**
Yes	41/89 (46.1)	3.62 (2.01 to 6.52)	2.81 (1.50 to 5.26)	

The 2006 Lancet series on maternal survival emphasised that the effectiveness of lay health workers programmes depend on comprehensive training, considerable supervision and logistical input,[25] along with good planning. It is also well evident that community level health worker programmes are not stand-alone initiatives, and all effort within the health system must be involved to strengthen the knowledge and skills of AMWs who are the frontline workers of the hard-to-reach rural areas with innovative and effective training and supervision packages.

There are a number of limitations to the present study. Practices of AMWs were based on self-reported practices rather than actual observed performance, and over-reporting can be a problem with this approach. Our finding of low knowledge and poor practices may therefore still be an underestimate of the size of the problem. As a cross-sectional study, the study is not able to determine cause–effect relationships. Creating composite variables for analysis may impose misclassification bias and findings should be interpreted with caution. Despite these limitations, results revealed that adequate supervision and regular refresher trainings are strongly correlated with AMW knowledge and practice relating to safe childbirth practices and knowledge. These findings suggest that greater investment in training and supervision is warranted.

Myanmar, a country in transition, with a fragile and weak health system, has chosen the path of training

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AMWs in response to national shortages in human resources for health. This policy is in line with WHO's task-shifting recommendations that advocate for training and supporting lay health workers to perform specified tasks often performed by higher-level health cadres in order to improve access to care for hard-to-reach communities.[8] However, our study finds that AMWs currently report low levels of knowledge regarding critical danger signs and poor practices relating to safe childbirth and immediate newborn care. Our findings underscore the need for comprehensive, skill-based training module with close supervision and support mechanism in order to improve the knowledge and skills of AMWs in Myanmar before future task shifting.

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Competing interests None declared.

Patient consent Detail has been removed from this case description/these case descriptions to ensure anonymity. The editors and reviewers have seen the detailed information available and are satisfied that the information backs up the case the authors are making.

Ethics approval Ethical approval for the study was obtained from the Ethics Review Committee of Department of Medical Research, Ministry of Health Myanmar (approval number 42A/ethics/DMR/2015). Ethical approval was also obtained from The Alfred Hospital Human Research Ethics Committee in Australia (approval number Project 150/15). Written information was provided in Burmese and written inform consent was obtained.

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Determinants of knowledge of critical danger signs, safe childbirth and immediate newborn care practices among auxiliary midwives: a cross sectional survey in Myanmar

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The potential of task shifting selected maternal interventions to auxiliary midwives in Myanmar: a mixed-method study

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Abstract

Background: An estimated 282 women die for every 100,000 live births in Myanmar, most due to preventable causes. Auxiliary Midwives (AMWs) in Myanmar are responsible for providing a package of care during pregnancy and childbirth to women in rural hard to reach areas where skilled birth attendants (Midwives) are not accessible. This study aims to examine the role of AMWs in Myanmar and to assess the current practices of three proposed essential maternal interventions (oral supplement distribution to pregnant women; administration of misoprostol to prevent postpartum haemorrhage; management of puerperal sepsis with oral antibiotics) in order to facilitate a formal integration of these tasks to AMWs in Myanmar.

Methods: A mixed methods study was conducted in Magwe Region, Myanmar involving a survey of 262 AMWs, complemented by 15 focus group discussions with midwives (MWs), AMWs, mothers and community members, and 10 key informant interviews with health care providers at different levels within the health care system.

Results: According to current government policy, AMWs are responsible for identifying pregnant women, screening for danger signs and facilitating early referral, provision of counselling on nutrition and birth preparedness for women in hard-to-reach areas. AMWs also assist at normal deliveries and help MWs provide immunization services. In practice, they also provide oral supplements to pregnant women (84%), provide antibiotics to mothers during the puerperium (43%), and provide misoprostol to prevent postpartum haemorrhage (41%). The current practices of AMWs demonstrate the potential for task shifting on selected essential maternal interventions. However, to integrate these interventions into formal practice they must be complemented with appropriate training, clear guidelines on drug use, systematic recording and reporting, supportive monitoring and supervision and a clear political commitment towards task shifting.

Conclusion: With the current national government's commitment towards one AMW in one village, this study highlights the potential for shifting specific maternal lifesaving tasks to AMWs.

Keywords: Auxiliary midwives, Maternal health, Task shifting, Mixed methods study, Myanmar

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Background

Health workforce shortages are a major contributor to maternal and newborn morbidity and mortality. [1] According to the 2014 census, Myanmar's maternal mortality ratio was 282 per 100,000 live births with wide variation between urban and rural areas [2]. In Myanmar, there are 14 health care providers per 10,000 persons with the necessary midwifery skills (doctors, nurses and midwives) [3]. This is well below the World Health Organization (WHO) recommendation of at least 23 per 10,000 to achieve 80% coverage for skilled health care worker attendance during deliveries [3, 4].

To address the gap in human resources for health, task shifting has been identified as a promising strategy by WHO to optimize health worker roles to improve access to key maternal and newborn interventions. Task shifting "is a process whereby specific tasks are moved, where appropriate, to health workers with shorter training and fewer qualifications" [1, 5]. Globally, auxiliary health workers such as Myanmar's Auxiliary Midwives (AMWs) are increasingly becoming providers of health services in low and middle income countries and the services they provide have reduced childhood undernutrition, expanded access to family-planning services and improved maternal and child health [6, 7].

In Myanmar, midwives (MWs) are the primary level health workers within the government health system providing maternal and child health care at the community level. However, MWs are not able to cover all rural villages, where 70% of the population resides [8]. To support MWs to care for mothers and children in hard to reach areas, AMWs are trained and organized by the government [9, 10]. AMWs are unpaid voluntary health workers and have been the largest community level frontline workers serving the mothers and children in rural remote villages since the program commenced in 1978 [11].

The Myanmar Ministry of Health and Sports is in the process of developing an essential package of health services for townships (basic health care infrastructure) that will be covered under universal health coverage. With the commitment of the Myanmar's government to investing in rural development and the health workforce skill mix, a policy was developed in 2013 of having an AMW in every village of Myanmar [3, 9]. Nationally, there are currently over 30,000 AMWs serving the country, which has a population of around 51.4 million [9, 12].

According to the WHO task-shifting recommendations, the competencies of auxiliary nurse midwife/auxiliary midwife should encompass 10 tasks as outlined in Table 1. Although the definition which includes secondary level of education and a period of on-the-job training for AMWs is similar to WHO's, AMWs in Myanmar are allowed to conduct only three of the identified tasks. Tasks which involve injection practices are proscribed for AMWs by Ministry of Health and Sports [13]. Within the allowable competencies, three maternal interventions [oral supplementation to pregnant women, oral antibiotics to treat puerperal sepsis, providing misoprostol for prevention of postpartum haemorrhage (PPH)]were identified for future task shifting by stakeholders (health administrators, policymakers, Non-Government Organizations, professional associations,

Table 1 Comparison of the competencies of Auxiliary Midwives in Myanmar with the assumed competencies of Auxiliary Nurse Midwives according to WHO recommendation

Assumed competencies of Auxiliary Nurse Midwives (ANM) within WHO recommendations	Current Auxiliary Midwives competency in Myanmar	Potential competency for Auxiliary Midwives
Promotion of maternal, newborn and reproductive health interventions	√	√
Oxytocin administration to prevent and treat PPH – standard syringe/ CPAD	X	Not allowed due to strict restriction on injection
Misoprostol administration to prevent PPH	X	**Possible**
Misoprostol administration to treat PPH	X	After the preventions dose must refer the patient immediately to hospital
Oral supplement distribution to pregnant women	X	**Possible**
Low dose aspirin distribution to pregnant women at high risk of pre-eclampsia/eclampsia	X	After detection of high blood pressure must referred pregnant mothers to the MWs for further care
Continuous support for women during labour, in the presence of a skilled birth attendant	√	√
Puerperal sepsis management with oral antibiotics	X	**Possible**
Puerperal sepsis management with intramuscular antibiotics – CPAD	X	Not allowed due to strict restriction on injection
Maternal intrapartum care (including labour monitoring, e.g. using a partograph; foetal heart rate monitoring by auscultation; decision to transfer for poor progress; delivery of the baby)	√	√

*ANM Auxiliary Nurse Midwives, *PPH* Postpartum haemorrhage, *CPAD* compact pre-filled auto-disable device, *WHO* World Health Organization [Table adapted from the GREAT guideline implementation report for Myanmar, 2014]

frontline healthcare providers and researchers) involved in the GREAT (Guideline-driven, Research priorities, Evidence synthesis, Application of evidence, and Transfer of knowledge) network research activity which was carried out in 2014 [14].

However, prior to adding selected tasks to the current work role of AMWs it is important to investigate the current context and understand the practices and perception of the community level actors. The objective of this study is to examine the role of AMWs in Myanmar and to assess the current practices of the three proposed interventions which are not allowed in written policy for the AMWs. We focus on a hard-to-reach area and assess the feasibility of formally integrating these three tasks within AMWs work practices to optimizing their role for maternal health care.

Methods

Study setting

Myanmar has critical resource constraints and faces a major gap in access to, and coverage of, health services in many regions of the country. Magwe region in central Myanmar with a population of 3.9 million was purposively selected based on its highest reported national maternal mortality ratio (344 per 100,000 live births) [2]. The region contains a number of hard-to-reach populations and in rural remote areas; most births take place at home. Three townships in Magwe region (Gangaw, Ngape and Seitphyu) were selected for the quantitative survey to represent the geographical diversity of the region and Ngape township was chosen for the qualitative study as the township has a high rate of births with AMWs compared to other townships in the region.

Study methodology

A mixed methods study design was applied and two previous publications have also reported on the qualitative and quantitative methodology separately [15, 16]. For the qualitative data collection, focus group discussions (FGDs) and key informant interviews (KIIs) were conducted using an interview guide to explore the role of AMWs, attitudes and perception towards AMWs, expectation of the services provided by AMWs and task shifting possibilities. A review of the current manual and micro plan (national plan with detail calculation of how many AMWs would be needed in each state and division, how much cost is needed to train each AMW) for AMWs was conducted. Subsequently, a cross sectional survey of AMWs was carried out using an interviewer administered pre-tested questionnaire, which included the practice of antenatal, birth, postnatal and newborn care practices of AMWs. Results relating to determinants of knowledge of critical danger signs and practices around the time of child birth have been reported in a separate article in which practice of Misoprostol has been mentioned in brief already [16].

Sampling and recruitment

Purposive sampling was used to collect the qualitative data. A total of ten key informants (three national, two district and three township level health planners and implementers, and two from the Three Millennium Development Goal Fund (3MDG) who were involved in maternal and child health program implementation) were interviewed. Fifteen FGDs (two with MWs, five with AMWs, four with community members and four with mothers with children under the age of 3 years) were conducted.

For the quantitative survey, a list of practicing AMWs was obtained from the township health departments and checked through discussions with the township medical officers. All practicing AMWs in the three townships were contacted for interviews.

All the interviews were conducted in Myanmar language after obtaining written informed consent including an explanation of the study objectives and the intended use of information. Participation was voluntary. Interviews were conducted at a convenient location and the participants were reimbursed with the actual cost of travel to the place of interview and provided a daily allowance to cover meal costs (3000 kyats, equivalent to US$2.5). Confidentiality was maintained throughout the study. Four research assistants led by an experienced researcher conducted the interviews after a three-day training of the research methods and the study objectives. Data collection was done from July 2015 to June 2016.

Data management and analysis

Quantitative data were checked for consistency and double data entry was done using the software Epi Data version 3.1. Data were analysed using STATA version 13.1. Binary and categorical variables were summarized by proportions and tabulations. For the qualitative data, all the transcripts were read and reread by the principle author in Myanmar language and all the translated versions of the transcripts were read and reread by the other coders. Transcripts of FGDs were translated into English before coding, while remaining data were coded in Myanmar language using ATLAS ti software. Two data coders coded the transcripts. Reliability coding was set at 80% agreement and the inter-coder reliability was found to be over 80%. The analysis was both inductive and deductive and relevant themes were categorized under the three main themes: perception of the role of AMWs, potential for task shifting responsibility and feasibility of integrating new interventions into the current health system. Quotations were used to support

the study findings and to enhance understanding of the local context. Data integration and triangulation was done at the interpretation phase of the study using both quantitative and qualitative data.

Results

Background characteristics of respondents

A total of 123 people participated in ten key informant interviews and 15 focus group discussions, comprising 15 MWs, 33 AMWs, 29 mothers and 36 community members. The FGDs comprised of 44 (35 women and 9 men) from the hard to reach villages and 69 (61 women and 8 men) from the non-hard to reach villages.

A total of 262 AMWs participated in the quantitative questionnaire survey out of 308 invited to participate (85%). Reasons for non-participation included having a young child at home and poor weather preventing travel. In the very hard to reach villages, 77% of the invited AMWs participated. The majority (82%) of AMWs lived in the villages where they were born (native village). The mean age of AMWs was 32 years and mean duration of working as an AMW was 10 years.

AMWs current role and responsibility

A review of the current AMWs manual [13] showed that AMWs were mainly responsible to identify pregnant women and make sure that the women are connected with the MWs for four antenatal check-ups including two tetanus toxoid injections. Their main responsibility during pregnancy is to counsel women on healthy eating, danger signs during pregnancy birth preparedness counselling, and early initiation of breast feeding. They are allowed to conduct normal home deliveries, postnatal care and newborn care. They are expected to detect danger signs and promote early referral of women to the MWs, giving first aid care before referral. AMWs conduct health education sessions to the community on nutrition and other locally endemic diseases. Currently they are not allowed to prescribe any medication to pregnant women. They are also responsible for recording and reporting of pregnant women and other cases of disease to the local health authorities (see Table 2).

Table 2 Role and responsibilities of Auxiliary Midwife

- Expected to identify pregnant mothers as early as possible and give antenatal care within their agreed authority, ideally aiming for at least four antenatal consultations. (AMW need to refer all registered pregnant women routinely as well as when showing danger signs and necessary must refer a pregnant mother (between 20 weeks and 35 weeks gestation) to the rural health centre for necessary investigation and if needed must accompanied the pregnant mother for emergency referral to the hospital)
- AMW should provide health education to pregnant and lactating women to promote healthy eating and prevention of locally endemic diseases to the community in the village.
- To encourage all pregnant mother to prepare thoroughly for delivery with a comprehensive birth plan
- AMW conducts home deliveries, postnatal care and new born care. Must be able to refer high risk cases of mothers and the newborns defined in the AMW manual to the hospital in timely manner
- AMW should provide support to infants through education to mothers on breast feeding practices such as exclusive breast feeding (for 6 months) and start of supplementary feeding at the age of 6 months.
- Monitor the growth and nutritional status of infants and under five children on a regular basis
- Must provide first aid care in the capacity of her skill and must be able to refer needed cases to the hospital
- Must report unusual diseases to the authority and must record the cases
- Must help and provide assistance to Basic Health Staff in carrying out reproductive health activities.

*AMW = Auxiliary Midwife; [Translated from a Burmese version of Micro plan for auxiliary midwives (2013-2016): Department of Health - Ministry of Health Myanmar, 2013]

Perception of the role of AMWs

The perception of AMWs by the community and health care providers was positive in the study township and they were considered as the main mediators between the community and health care system. All levels of key informants stated that AMWs are essential health care providers serving the community with not only maternal and child health care but also with other health related activities including disease control and environmental sanitation. Health care providers also mentioned that without the existence of AMWs in hard-to-reach areas where MWs are unavailable, the mothers and children would be in the hands of traditional birth attendants and quacks. MWs in the focus group discussions stated that AMWs were a real helping hand for them because they were able to identify pregnant women in the villages and were able to understand the social background and local language of the women in their care.

> *"If they (AMW) do not exist, patients do not have anyone to rely on especially in the hilly villages. You see when a mother gets in trouble during her pregnancy and if AMWs do not exist and we are out of town, there will be lots of problems"* (MW FGD hard-to-reach)

Mothers in the FGDs mentioned that AMWs were the first health care provider they notified of their pregnancy as she is always available. Regular home visits and counselling by AMWs also enhanced the early identification of at risk pregnancies and timely referral. AMWs were also considered as community mobilizers for immunization who make

an inclusive list of who is to be immunized. In the hard to reach areas, MWs rely on the AMWs.

> *"Well....when they find out new pregnant women, they tell us, I give the pregnant woman antenatal care. They can tell us immediately because they are always around in the village regularly, so, they can get information easily and quickly. They help us when we do health talk sessions and measure babies' weight. Moreover, they call anyone who needs to receive service and they make sure no one misses."* (MW FGD non hard-to-reach)

AMWs also conduct normal deliveries in villages where MWs are not present. They are also willing to assist MWs when they conduct deliveries. Post-natal care and psychological support are usually given by AMWs and appreciated by women and their families. AMWs mentioned that serving the community and assisting women in delivery was satisfying. Although they mentioned their role as important, they also expressed their difficulty and devastation of being a voluntary worker without any incentives and payment.

> *"We are a common slave for the villagers and the health staff. We don't have days and nights and whenever there is an emergency they (villagers and health care providers) remember to call us. Sometime we had to come with our own expanse and eat from out of pocket. No one pays us a penny"* (AMW FGD hard-to-reach)

Potential for task shifting responsibilities

MWs in the study mentioned that they had shared some of their practices with AMWs. The main activities MWs shared to AMWs were providing pregnant women with vitamin supplementation (ferrous sulphate, folic acid, vitamin B1 and vitamin A); providing misoprostol for prevention of PPH; and giving antibiotics such as metronidazole and amoxicillin to treat fever and puerperal sepsis. However, all these activities were done on an ad hoc basis with no regulatory processes. MWs mentioned that these task shifting activities were done due to conditional circumstances and the needs of the community. Geographical distance and the relationship between the AMWs and the MWs were articulated as reasons for task shifting. AMWs that live geographically far away and have a better relationship with the MWs were more likely to be distributing drugs to pregnant mothers compared to those who lived close and were not in a good relationship.

> *"For those AMWs in far mountain villages who listen to us, we teach them how to use and what amount should be given for what kind of drugs. We tell them how much should be given for adult and for children. We thoroughly tell them"* (MW FGD hard-to-reach)

Quantitative findings also showed that AMWs were providing the three proposed interventions in practice: oral supplementation (84%), oral antibiotics to treat puerperal sepsis (43%) and misoprostol to prevent postpartum haemorrhage (41%). It was observed that oral supplementation was the most commonly performed task. This was explained in the qualitative findings by AMWs that oral supplementations were more freely available compared to the antibiotics and misoprostol. Health care providers mentioned that, ferrous sulphate, folic acid and vitamin B1 and A were regularly supplied by the government. AMWs in the FGD described,

> *"MW usually asks the number of pregnant women. We provide the number and MW gives the medicine (Ferrous sulphate and folic acid) monthly"*

The use of antibiotics for various purposes such as fever, flu and cough was a common practice by both the AMWs and the MWs. The most widely used antibiotics during the puerperal period were amoxicillin and metronidazole. Further exploration was made regarding the dosage of use, and it was mentioned that AMWs were instructed by the MWs to give an adult a dose of 500 mg 3 times per day for amoxicillin and 200 mg 3 times per day for 3 to 5 days for metronidazole. Some MWs mentioned that they use their mobile phones to instruct AMWs on how to treat. The main sources of the drugs were from the MWs and local drug shops. AMWs in the study mentioned that antibiotics can be freely purchased from the local drug stores without need for prescription. A few AMWs in the FGDs mentioned that,

> *"we usually buy the drugs from the drug store in town and sometime MWs share their drugs if they get a lot from the township"* (AMW FGD hard-to-reach)

Township level health care providers said that the use of misoprostol to prevent postpartum haemorrhage was introduced around 2012 in the study townships and many of the MWs in the study articulated that they have instructed and shared their misoprostol to AMWs especially those in hard to reach remote villages. The most common dosage of misoprostol by AMWs was two tablets (totalling 400 micrograms) immediately after the birth of the baby. The detailed description of the perception and use of misoprostol by AMWs have been described in an earlier paper [15].

MWs mentioned that with thorough explanation and guidance, they could assure that AMWs would be able to distribute the drugs to mothers safely. AMWs were also confident and willing to take on the assigned role if it was given with proper training and guidance. The potential feasibility of the task shifting activities from the qualitative interviews is outlined in Table 3.

The attitude to task shifting was positive by all key informants interviewed. Although many limited the scope of services to oral drugs as most of the health care providers in the study knew that changing the injection drug policy will not be easy and will take time. A district level key informant stated

> *"As long as it is not an injection, I think any form of oral drugs like vitamins and antibiotics will be ok. However, we need to train them[AMWs] on how to use the drugs with clear guidelines. Is life saving and it can be given to them safely."*

Feasibility of integrating new interventions into the current health system

Guidelines on use and availability of drugs

Key informants and MWs raised concerns regarding the instructions and guidelines for use of drugs by AMWs. They mentioned that there are no official guidelines and instructions on use of drugs by either AMWs or MWs. Since there are no guidelines, local townships practices vary according to the availability of the drugs and informal instructions given by individual projects.

They also mentioned the availability and consistent supply of drugs required for task shifting. Currently, there is ample supply of drugs due to the government supply in 2015 and the 3MDG program, however MWs stated that regular and consistent supply of drugs will be needed for sustainability and effective task shifting. For the AMWs, the supply of drugs [such as ferrous sulphate, folic acid, B1, misoprostol and antibiotics (amoxicillin and metronidazole)] was currently given by the MWs but the supply is inconsistent. There is neither systematic supply chain mechanism for the AMWs nor any recording of drugs given which was articulated as a barrier to potential task shifting.

> *"We (MWs) just give the drugs when we have it and when we don't we cannot give it, they (AMWs) also get the drugs direct from the NGO working in the area, sometime"* (MW FGD non hard-to-reach)

Inconsistent MW availability

Key informants mentioned that task shifting of the proposed interventions was feasible in places where there is inconsistent availability of MWs. Although MWs are assigned to hard to reach villages where there is a sub rural health centre, they rarely live in the assigned villages due to transportation and socioeconomic difficulties. This inconsistent MW availability was also articulated by the mothers and community members in the FGDs. In one hard to reach village the MW had been absent throughout her assigned period. MWs also expressed their difficulties of staying in hard to reach villages due to challenging transportation, language barriers, poor living conditions and cost of living.

> *"If you are not a native, the very first problem is language. We can't live because their life styles are not the same….quite frankly, one who is not local will only stay for 15 days in an assigned area while local stays because the local one doesn't need to return home"* (MW FGD hard-to-reach)

Supervision and monitoring issues

All levels of health care providers pointed out that current supervision and monitoring systems for AMWs were weak. Apart from MWs meeting with AMWs during the monthly immunization sessions, there was no regular planned supervision or monitoring visits. Lack of support for travel was identified as the major barrier by MWs for supervision. Some of the AMWs mentioned that no government health staff had ever visited their villages. Many of the MWs mentioned that although they realize the importance of supervision and monitoring, there is no support mechanism currently available to solve the problem.

> *"No one from the health department has ever been to my village because it is very far and it takes me about 9 hours to get here but for you it may take the whole day"* (AMW FGD hard-to-reach)

Training gaps

Many key informants and AMWs in the study talked about the need for proper training if the new practices were to be implemented as there is no standard guideline on how to use the drug and dosage in the current training manual. Key informants also raised concerns regarding the current training materials and methods of training stating they were too theoretical and that the current AMWs' manual resembles a text book rather than a training curriculum. There is no Training of trainers for AMWs at the national level. In regard to training for potential task shifting interventions, respondents emphasised practical training with hands on exercises.

> *"For the AMW, we must have a specific curriculum for the training and all the oral drugs usage needs to be in the guideline, it should be standardized from the*

Table 3 Responses from FGDs with mothers, community, AMWs and MWs for specific interventions

Task	AMWs (*N* = 33)	MWs (*N* = 15)	Mothers (*N* = 29)	Community (*N* = 36)
Oral supplementation to pregnant women	Confident; Majority of AMWs already in practice, and drugs are mainly supplied by the respective MW during the immunization sessions	Agreed; No difficulty being mentioned	Agreed; Have been taking drugs given by AMWs during pregnancy and childbirth	Agreed; AMWs have been providing oral medication to villagers for minor illnesses
Misoprostol for prevention of PPH	Confident; Some of the AMWs are distributing 2 tablets misoprostol to mothers with drugs provided by MWs especially in hard to reach villages	Agreed; Refresher training suggested on PPH and drug administration	Agreed; Some mothers have received 2 tablets after the birth of the baby from the AMWs, but could not identify the name of the drug	Agreed; Limited knowledge of the drug and if it is for the benefit of the mother and the baby willing to accept
Oral antibiotics for puerperal sepsis	Confident; Only a few AMWs have used antibiotics for puerperal sepsis as cases are rare	Agreed; Refresher training suggested on puerperal sepsis and use of antibiotics	Agreed; Have received some drugs for fever and cough but were not able to identify the name of the drug	Agreed; AMWs have treated fever and cough cases with paracetamol and amoxicillin. Only some were able to identify the name of antibiotics

**AMWs* Auxiliary Midwives, *FGDs* Focus Group Discussions, *MWs* Midwives, *PPH* postpartum haemorrhage

Department of Health Human Resource and Planning. We need one trainer and trainee manual for the whole country. It should not be project or funding based. It is the responsibility of the health system to control the trainings" (District level key informant)

Health system priorities

Maternal and child health has been given a high priority by the government in recent years. Key informants from the national and district level mentioned that task shifting is a new word for them and that there are policy level limitations and delays that may be faced in introducing task shifting to AMWs. They suggested that the AMW program reached its peak in recent years due to political interest by the previous government. However, with the changing political landscape after the 2016 election, it is not clear if this support will continue. They stated that evidence based policy briefs will be necessary for the potential task shifting interventions to move forward with increasing awareness and interest. A national level key informant said that,

"At the moment AMW trainings are continuing but I think is not a priority anymore after the change of government and there is no clear policy….MW upgrading and curriculum development…. new Public Health Supervisor 2 trainings…is all here and there"

Discussion

The findings from this study highlight that AMWs in Myanmar are already demonstrating their capacity to provide selected maternal health interventions. Despite the absence of policy endorsement there is a local acceptance by MWs who facilitate AMWs to provide drugs to mothers in hard to reach areas. The current role of AMWs, as intermediaries between the community and the health system and their accepted place in antenatal care, childbirth and postnatal care translates to broad acceptability for giving oral medications to women during pregnancy and at the time of child birth.

Another factor in favour of task shifting is the inconsistent availability of the MWs in geographically hard to reach villages. Although the Ministry of Health and Sports recognises that more MWs are needed, there are still limitations to filling the gap [3]. Other studies have also shown that skilled health care providers are not available in the assigned health posts due to financial and transport difficulties, socioeconomic hardship, available schooling and geographical location [17]. Generally, AMWs in geographical locations where there are no MWs and no support system were more in favour of task shifting [15, 18]. Task shifting to alternative cadres for maternal and child health has been emphasized as an important strategy in countries where there is geographical inaccessibility and limited availability of skilled care attendants [19–21].

Other country experiences demonstrate that administration of medications by community based health workers has reduced childhood and maternal morbidity and mortality [22–24]. Trained community volunteers in Nepal were able to provide misoprostol to women in the community and uterotonic protection for deliveries rose from 11.6% to 74.2% with largest gain to reach the poor, the illiterate and women from remote areas [25]. A study in Pakistan using Trained Traditional Birth Attendants with monitoring supported by Lady Health Visitors and Community Health Nurses, to administer 600 microgram of misoprostol to women with postpartum haemorrhage has reduced maternal mortality by 24% [26]. However, these studies also recommended the importance of training and supportive supervision as a necessity in success [22, 25, 26].

In our study task shifting was already occurring in the study townships. Although such informal task shifting has been suggested as an initial path to task shifting, informal task shifting without having an explicit policy has raised concerns by health care workers and policy makers regarding unclear role and responsibilities of health workers [27–29]. Without the protection of a formalized policy and guidelines in practice, task shifting may pose a threat to the safety and performance of AMWs.

In other reviews of task shifting programs recommendations include conducting a detailed task analysis of both the work of those to whom tasks will be shifted and the work of those from who tasks will be relieved, to ensure that the task shifting does not create a different system bottlenecks [29, 30]. Although this study reviewed the tasks provided by AMWs, the study was limited to this cadre only without a comprehensive review of tasks performed by MWs. A task analysis of existing community level providers for maternal and child health care is recommended for the effective implementation of the task shifting interventions [30, 31]. Also task analysis provides the opportunity to revisit the current voluntary status as the increasing complexity of tasks expected of AMWs may not be consistent with a voluntary status. Thus incentives and funding mechanism for AMWs need to be considered in future policy options.

Despite task shifting being a practicable option for human resource shortage, reports of concerns regarding quality, safety and sustainability have been documented from experiences of task shifting in HIV/AIDS in sub-Saharan Africa [32, 33]. Lessons learnt from barriers and enablers to effective implementation of the guidelines has pointed out that without evidence-based health

policies to support implementation along with health system level factor readiness it will be hard to effectively implement task shifting initiatives [34].

Although there is an AMW manual [13], many of the health care providers in the study mentioned that no training curriculum for both trainers and trainees regarding AMWs existed. Reviews have pointed out that without appropriate training resources (curriculum, trainers and training materials) and appropriate skills building, task shifting may place the low level health worker and their supervisors at risk of malpractice [31]. In eastern Myanmar, task shifting to promote basic health service delivery among internally displaced people in ethnic health program service areas showed success through reorganizing and training the workforce with a rigorous and up-to-date curriculum for the Ethnic health organizations and community based health organizations [35]. According to the new National Health Plan, the government is committed to ongoing capacity building: "Ensuring that all Voluntary Based Health Workers, including CHWs and AMWs, are confident to take on the duties assigned to them is critical to their effectiveness. Sufficient skill-based training and consistent support and supervision from Basic Health Staff will be required – this requires resources to support and it needs to be taken into account for the uptake and delivery of interventions" [36].

Strengths and limitations of the study

We employed a mixed method approach which enriched the study in two ways. First, the qualitative study helped us to understand the potential for task shifting three interventions to AMWs from both community and providers' perspectives. The feasibility of the tasks was confirmed by the quantitative study where we documented the frequency with which these tasks were already being performed by AMWs. However, the study townships were purposefully selected based on their hard-to-reach characteristics and findings may not be representative of the perspectives of equivalent stakeholders in other regions, limiting generalizability of our findings.

Conclusions

Our study brings light to the Myanmar context in considering the potential for training and task shifting the oral administration of essential maternal interventions at community level to AMWs. The necessary enabling factors that are described above include supportive supervision, clear drug usage guidance and procurement and policy commitment to task shifting. As the Ministry of Health and Sports is committed to increasing the number of AMWs in every village of the country for reaching equitable care to mothers and newborn, optimizing the role of AMWs through task shifting effective interventions on maternal and child health should be considered.

Abbreviations

3MDG: The three millennium development goal fund; AMW: Auxiliary midwife; CPAD: Compact pre-filled auto-disable device; FGD: Focus group discussion; GREAT: Guideline-driven, research priorities, evidence synthesis, application of evidence, and transfer of knowledge; KII: Key informant interview; MW: Midwife; NGO: Non-government organization; PPH: Postpartum haemorrhage; WHO: World Health Organization

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Availability of data and materials

The datasets generated and analysed for the current study are not publicly available as the qualitative study was collected from a specific township, and the information may be identifiable to particular individuals, risking a breach in confidentiality. The quantitative data are available from the corresponding author on reasonable request.

Authors' contributions

KKT contributed to study design, data collection, data analysis and led the first draft and finalization of the manuscript. TGM and KST contributed to the data collection and development of the manuscript. KNT and TZL contributed to data collection, data analysis and development of the manuscript. JGB and SL contributed to study design and development of the manuscript. AM contributed to data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

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Ethics approval and consent to participate

Ethical approval for the study was obtained from the Proposal and Ethical Review Committee of the Department of Medical Research, Ministry of Health Myanmar (approval number 42A/ethics/DMR/ 2015) and from The Alfred Hospital Ethics Committee in Australia (approval number Project 150/15). Approval to conduct the study was also obtained from the Ministry of Health after obtaining the ethical approval from the Department of Medical Research. Written information was provided to all participants in Myanmar language and written consent to participate in the study was obtained. Consent forms were stored in a secure location at Burnet Institute.

Consent for publication

Written permission was taken and granted from all participants in the study that after de-identification of the transcripts quotations will be used for publications.

Competing interests
We have read and understood BMC policy on declaration of interests and declare that all authors have no competing interests.

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Prevention of postpartum haemorrhage by community-based auxiliary midwives in hard-to-reach areas of Myanmar: a qualitative inquiry into acceptability and feasibility of task shifting

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Abstract

Background: In Myanmar, postpartum haemorrhage is the leading cause of maternal mortality and contributes to around 30% of all maternal deaths. The World Health Organization recommends training and supporting auxiliary midwives to administer oral misoprostol for prevention of postpartum haemorrhage in resource-limited settings. However, use of misoprostol by auxiliary midwives has not formally been approved in Myanmar. Our study aimed to explore community and provider perspectives on the roles of auxiliary midwives and community-level provision of oral misoprostol by auxiliary midwives.

Methods: A qualitative inquiry was conducted in Ngape Township, Myanmar. A total of 15 focus group discussions with midwives, auxiliary midwives, community members and mothers with children under the age of three were conducted. Ten key informant interviews were performed with national, district and township level health planners and implementers of maternal and child health services. All audio recordings were transcribed verbatim in Myanmar language. Transcripts of focus group discussions were fully translated into English before coding, while key informants' data were coded in Myanmar language. Thematic analysis was done using ATLAS.ti software.

Results: Home births are common and auxiliary midwives were perceived as an essential care provider during childbirth in hard-to-reach areas. Main reasons provided were that auxiliary midwives are more accessible than midwives, live in the hard-to-reach areas, and are integrated in the community and well connected with midwives. Auxiliary midwives generally reported that their training involved instruction on active management of the third stage of labour, including use of misoprostol, but not all auxiliary midwives reported using misoprostol in practice. Supportive reasons for task-shifting administration of oral misoprostol to auxiliary midwives included discussions around the good relationship and trust between auxiliary midwives and midwives, whereby midwives felt confident distributing misoprostol to auxiliary midwives. However, the lack of clear government-level written permission to distribute the drug was perceived as a barrier to task shifting.

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Conclusion: This study highlights the acceptability of misoprostol use by auxiliary midwives to prevent postpartum haemorrhage, and findings suggest that it should be considered as a promising intervention for task shifting in Myanmar.

Keywords: Maternal health, Community-based care, Oral misoprostol, Postpartum haemorrhage, Auxiliary midwives, Task shifting, Qualitative inquiry, Myanmar

Background

Maternal mortality remains a major challenge to health systems worldwide. Globally, there were an estimated 303,000 maternal deaths in 2015 [1]. The leading cause of maternal mortality in low-income countries is postpartum haemorrhage, which is the primary cause of nearly one fifth of all maternal deaths worldwide [2]. Postpartum haemorrhage is commonly defined as a blood loss of 500 ml or more within 24 h after birth. In many cases, postpartum haemorrhage after birth is preventable through use of prophylactic uterotonics during the third stage of labour with timely and appropriate care and management [3].

In Myanmar, it is estimated that the maternal mortality ratio decreased from 360 to 200 per 100,000 live births between 2000 and 2013 [1]. However, according to a nationwide cause-specific maternal mortality survey, postpartum haemorrhage remains responsible for an estimated 30% of all maternal deaths, making it the leading cause of maternal mortality in the country [4]. Urgent actions are being taken by the Government of Myanmar to bring down the high rate of maternal mortality, recognising the human resource shortage in hard-to-reach areas as one of the main causes. Inadequate health literacy in the community, being responsible for too many women, and poor accessibility are some of the challenges faced by skilled birth attendants assigned to rural hard-to-reach areas [5]. One of the mechanisms that the Ministry of Health has employed is to promote the existence of auxiliary midwives (AMWs) with the aim of "one AMW to be trained in every village" by 2016 [6]. AMWs are categorized as unpaid volunteer health workers and have been part of the health system since the late 1970s [7]. AMWs are mostly local women with secondary level of education, who have been selected and trained under the guidance of the Township Health Department for three months in theory and three months in practical skills related to antenatal care, uncomplicated deliveries and postnatal care. The main role of AMWs is to perform preventive care such as counselling of mothers on safe motherhood and promoting delivery with a skilled attendant. AMWs are to assist midwives (MW), who are skilled birth attendants from the formal health sector.

When a skilled birth attendant is available, the most effective intervention for preventing postpartum haemorrhage is active management of third stage of labour which includes administration of a uterotonic drug after the birth of the baby, controlled cord traction, and uterine massage. Active management of third stage of labour using oxytocin injection as the preferred uterotonic is current best practice for prevention of postpartum haemorrhage [3, 8, 9]. However, the need for cold chain storage and a skilled provider to administer an injection hinders the distribution and usage of oxytocin in many resource-limited settings, particularly in more remote communities [10].

Misoprostol is an oral uterotonic drug suggested as a substitute to oxytocin in low resource settings [11, 12]. As this drug does not require cold storage and can be administered orally, it has been used and proven to be effective when administered by community health workers to prevent postpartum haemorrhage in several countries [13–16]. Current World Health Organization (WHO) task shifting guidelines specifically recommend misoprostol use by AMWs in situations where there are no skilled birth attendants and home births are common [17]. In Myanmar, 70% of the population resides in rural areas where home births are a common practice [18]. Although AMWs in Myanmar are categorized as unskilled birth attendants, current training manuals include the topic on active management of the third stage of labour with the use of misoprostol [19]. However, use of uterotonics including misoprostol by AMWs remains controversial due to concerns regarding the management of possible side-effects such as fever and chills, and the potential use of misoprostol to induce abortion. This study aimed to explore community and provider perspectives on the role of AMWs and explore community-level provision of oral misoprostol by AMWs.

Methods

To understand the barriers and facilitators towards task shifting of AMWs in Myanmar, we undertook a descriptive mixed methods study. This paper reports on the qualitative research component of the study.

The qualitative inquiry was conducted in Ngape Township (an administrative subdivision of a district) in Myanmar. Ngape Township was purposefully chosen

because it is a hard-to-reach township, some 16 h driving from Yangon. Ngape Township has an estimated population of 46,572 and has one township hospital, one station hospital and three rural health centres.

The consolidated criteria for reporting qualitative research (COREQ) checklist was used to report the methodology and findings of the study [20].

The research team consisted of one experienced qualitative researcher who moderated all interviews and focus groups, and four research assistants involved in note-taking and transcribing the audiotapes. Apart from one research assistant, all were female. Two research assistants were medical doctors and two were non-medical, all with some level of experience in conducting in-depth interviews (IDIs) and focus group discussions (FGDs). The research team participated in a three-day refresher training on the background and rationale of the study, its objectives, ethical considerations and on strengthening certain qualitative research techniques more specifically.

The topics that were covered in the interviews and focus groups were beliefs and practices around childbirth, community preference of birth care provider, birth place, role of provider in antenatal, childbirth and postpartum care, beliefs and practices around postpartum haemorrhage and other complications, relationship with health care providers, perspectives towards AMWs, and provider and community perspectives towards task shifting of misoprostol to AMWs. Final interview guides are available at Additional file 1. Pre-testing of the interview and focus group guides was done in Thanlyin Township (a semi-rural area in Yangon Division) to identify the nature of the interview/focus group and the content of the interview or focus group guide. From the pre-test, it was learnt that conducting FGDs with the AMWs in the hospital setting was not conducive to the discussions as they were reluctant to talk about issues related to relationships with health care providers and actual practices in the community. Therefore, apart from the two FGDs with the MWs, which were done in the township hospital, all the other FGDs were done in community gathering places of the respective villages and the office of an international NGO in Ngape Township. All the individual interviews were done in private places chosen by the interviewee, and were mostly carried out in the offices of interviewees.

Five advocacy meetings were undertaken with the district and township level authorities before data were collected. A total of ten key informants (three national level health planners, five district and township level health planners and implementers, and two from the Three Millennium Development Goal (3MDG) fund who were involved in maternal and child health program implementation) were conducted. Moreover, 15 FGDs (two with MWs, five with AMWs, four with community members and four with mothers of children under the age of three years) were done from both hard-to-reach and non-hard-to-reach areas as the main dimension for sampling. Each FGD consisted of between five and twelve participants. The criteria for categorization of the hard-to-reach and non-hard-to-reach villages are based on the geographical hard-to-reach definition used by the 3MDG programme based on scores allocated for travelling time to the nearest facility, mode of travel, transport charges and roads affected by seasonal variation. A total of 12 points are given and villages scoring 0 to 3 are considered as non-hard-to-reach, while 4 and above as hard-to-reach villages [21].

As all the research team members were Myanmar nationals, there were no language or cultural barriers. The process of the research team members explaining ethical procedures and permissions granted to the participants during the first session created reluctance among many participants in the beginning of the interviews and focus groups, as they saw the interviewers as academic professionals, creating a power imbalance. This was mitigated by first talking to them about their personal backgrounds and demonstrating an interest in their views regarding the topic, which took around five to ten minutes. It is still acknowledged that responses from participants may have been influenced by their perception of the research team.

All the FGDs were audio recorded with written informed consent from the participants. Three interviewees refused to be audio recorded; all other IDIs were audio recorded. Note taking was done for all the interviews and FGDs. All audio recordings were transcribed verbatim in Myanmar language from the digital recorders by the note takers and checked against field notes for consistency. The durations of the FGDs and IDIs ranged from 30 min to 90 min with an average duration of 50 min. Data were collected until it was felt that data saturation was obtained. During the data collection process, daily discussions were made around the main themes using a matrix in Myanmar language. These discussions afforded the opportunity to undertake preliminary interpretation of the data collected while it was still fresh in the minds of the research staff. Before the actual coding, all transcripts were read and reread by the principal author in Myanmar language and all the translated versions of the transcripts were read and reread by the other coders. Transcripts of FGDs were fully translated into English before coding, while remaining data were coded in Myanmar language using ATLAS.ti software. Two data coders coded the transcripts. Reliability coding was set at 80% agreement and the inter-coder reliability was found to be over 80%. This approach balanced the differing views of the researchers in the study. During the time of coding, any unclear information regarding the transcripts and context was verified and clarified

with the primary author who has knowledge of the context. The primary coding structure was developed around conceptual codes and sub-codes identifying the key concepts and essential dimensions of the main topic domains. In some of the topics the sub-code level went down to three levels under the main topic. Relationship codes were also found identifying links between other concepts coded with the conceptual codes. Participant characteristics (key informants, MWs, AMWs, mothers and community members) were also considered during the coding process. Before finalising the code structure, the two researchers who coded the transcripts collaboratively reviewed the coding structure and agreed on the final version. Main themes were pre-identified using the focus group discussion and the individual interview guides and emerging themes were also noted and discussed. Quotations are used to support the study findings and to enhance understanding of the local context.

Results

Study participants

Data were collected over a 7-month period between July 2015 and February 2016. Ten participating key informants came from the national Department of Health, and from district and township level health departments involved in maternal and child health planning and implementation (Table 1). District and regional level health departments provide supervisory and technical support to the township level and guide the process of AMW recruitment, supervision, training and decision making towards AMW roles and tasks. Township level health departments mainly manage the township health system which is the backbone of primary health care, provide comprehensive health services at the local level and is predominantly responsible for management of the AMW activities [22]. Key informants had between five and 37 years of experience in the health service.

Fifteen MWs and 33 AMWs participated in two and five FGDs respectively. Thirty-six community members participated in the FGDs, 18 being male and 18 female. Community members comprised of local people who are knowledgeable about their village such as community leaders, teachers, village health committee members and elders.

Community attitudes and practices towards childbirth

Our inquiry identified that many women in the study township preferred a home birth. The main reasons for choosing a home birth were family and community support given at the time of childbirth. In hard-to-reach villages, a village was still perceived as one large family with social and traditional closeness to one another. It was perceived that during childbirth, women who may or may not be a relative are always there to lend a helping hand. Participants in the study mentioned that giving birth surrounded by relatives and neighbours provided them with strength and courage.

" ….when we have labour pain we call: "Mom, sisters, please come. I have pain." We also call the neighbours. I feel strong and they cheer me and help me shout"

(a woman with four children in FGD with mothers)

Another reason given in favour of home births was that there is no one to look after the children or household if mothers would leave the house. For a facility delivery, there tended to be a need for an accompanying person to look after the woman and at the same time someone to look after her children at home. Someone to stay with the children or take care of the household during the facility delivery was hard to find, while for home deliveries women can easily come and attend the delivery as they live near to one another and can come when they have free time.

"…they prefer home deliveries…..most of the people live in the farms and not in the village…..who will look after their live stocks like pigs and chickens…who will look after their children?"

(AMW from non hard-to-reach village during FGD with AMWs)

Community members and providers in hard-to-reach areas mentioned long distances and travelling time to reach the nearest hospital as a barrier to facility births. In these areas, traveling to the nearest hospital could take over 6–10 h of walking before reaching a road

Table 1 Overview of study participants of the focus group discussions and in-depth interviews

Category	Number of Focus Group Discussions	Total no of participants	Age range of participants
Auxiliary Midwives (AMWs)	5	33	19–52 years
Midwives (MWs)	2	15	24–55 years
Mothers with children under three years of age	4	29	21–37 years
Community members	4	36	21–60 years
Key informants	–	10	31–67 years

where transport needs to be arranged. Women in these hard-to-reach areas were described by MWs as the hardest community groups to send to hospital when requiring emergency care. Planned facility based deliveries for high-risk women are recommended by the AMWs and MWs. It was reported that many of the women who lived near a facility were more willing to go for a facility delivery, whereas women in hard-to-reach areas only go to a health facility for complications and emergencies.

"I got labour pain and waited for about 1 day and 1 night hoping to deliver the baby at home. The TBA [traditional birth attendant] didn't know what was happening. When examined by the AMW and didn't see the head of the baby as well. I was told I must go to the hospital… So, I hired the car and went to the hospital"

(a woman who had facility delivery from hard-to-reach area in the FGD with mothers)

It was not only due to distance, but also due to the costs associated with transport and hospitalization. Women reported that the only reason to give birth at a facility was in situations of a life-threatening emergency.

"I had to go to the hospital because my placenta did not come out after the baby was born… I was scared but the AMW said we must go… or it will cause my life"

(a woman who had complications during birth in the FGD with mothers)

Care providers at home births

The main providers attending home births in the study area are AMWs, MWs and traditional birth attendants. Few reported on the use of traditional birth attendants to manage the home deliveries. Currently, traditional birth attendants are reported to be less frequently used for assisting with deliveries, but considered as helpers for the daily cooking and cleaning activities for some of the wealthier families in the village. In villages where the MW is present, home births are mainly attended by the MWs. However, in villages where there is no MW, and particularly in hard-to-reach areas, the main health care providers for home births are AMWs. In some of the villages where there are both MWs and AMWs, the AMWs often assist the MWs during delivery.

"mostly the mothers call the AMWs first because they live in the village but the AMWs under my supervision always inform me with a phone and I also attend the delivery together."

(MW from a hard-to-reach area during FGD with MWs)

Perspectives towards AMWs

According to the mothers and the other community members, AMWs were easily accessible as they lived within the community. They described AMWs as 'natives who live close to them' and who can be called upon 24 h a day, seven days a week. Having a village-owned AMW was considered an asset to the village. Mothers in the community also mentioned that AMWs are trustworthy and skilful members of the community. AMWs are well-recognised by the community for their care during the time of need not only for pregnant women but for the village as a whole.

"She [AMW] lived in this village all her life. She delivered all three of my babies and she is very skilful. Also, she [AMW] has very good relationship with [midwife] and if needed she also calls her and attend the deliveries together."

(Female community member during FGD with community members)

Acceptability of AMWs was generally high among key informants from all levels of the health system. MWs and other township level health care providers mentioned that AMWs are promising health care providers for the community, especially in the more remote areas where there is no MW. MWs reported relying on the AMWs for all services rendered to the mother and the child and MWs appreciated their assistance.

"AMWs are essential especially in places where we can't go. Mothers may want to deliver with us… but in reality it is very far and we cannot be there, so they usually deliver with the AMWs. If they need help, they send someone (flag person) to call us for help…. when it comes to delivery, they [women] can't wait and have no time to call us in advance."

(MW assigned to a hard-to-reach area during FGD with MWs)

Community members and AMWs in the study mentioned that in some of the villages, MWs were only able to come once a month for immunization. Reluctance of MWs to stay in villages, and barriers to access resulting from long distances and tough travelling circumstances were major factors.

"Our village is quite far, although a midwife is assigned, she rarely comes, she only comes for immunization… not only her… none of the midwives stayed. We have the rural health centre and we made a house so that MWs would stay, but they don't stay…

it took you all to reach here half a day… in the rainy season… is very tough"

(Community member from hard to reach village in the FGD with community)

Community members indicated that they relied on the AMWs because they were local women and readily available for deliveries and in times of emergencies. Although AMWs were considered as reliable health care providers, some of the providers mentioned their concerns about over-confidence of the AMWs in conducting health care activities.

"They [AMWs] think they can do all. We teach them ethics in school, meaning in the training but they act in the village as they were trained MW and say and act like a MW. I mean, we teach them and tell them what to follow 'dos and don'ts' during their training but they act and do beyond what is taught."

(Township level health care provider from key informant interview)

Experiences of post-partum haemorrhage by AMWs

Although postpartum haemorrhage is a rare event in their daily practice, many of the AMWs in the study had experienced one or more serious events of a patient with severe bleeding, either in the community or at the hospital, during their service years. AMWs mentioned the events as unexpected and scary with serious 'fear of death' as their main concern due to limited experience and lack of available resources. The only measure AMWs were trained in and able to provide was timely referral to the nearest hospital and many felt helpless when they actually encountered the bleeding. The second level of care at rural health centres is not equipped with the lifesaving facilities for a bleeding woman in life-threatening danger Therefore, referral to a tertiary care hospital seemed to be the only resource for further care.

"…I felt so scared as she was bleeding heavily and the MW told me to come to the hospital immediately and I put my fist into the vagina to stop the bleeding and I thought she was going to die"

(AMW from hard-to-reach village during FGD with AMWs)

Current practices and management of post-partum haemorrhage

Strong national guidelines exist for the government-trained skilled birth attendants at the community level (MWs) for the management of postpartum haemorrhage. Oxytocin injection is widely used in the facility settings, and is the intervention of choice. Management of postpartum haemorrhage at the community-level varied between MWs: most use 10 units of intramuscular oxytocin injection for prevention of postpartum haemorrhage, while a few MWs mentioned using misoprostol immediately after birth. The law prohibits AMWs from administering any injections, and current national guidelines do not support the use of misoprostol by AMWs. Misoprostol was introduced into the township health system around 2012. In the study Township, the drug became widely available with the introduction of the 3MDG program in 2014. One of the township level key informants described the availability of the drug as follows:

"Nowadays, we have plenty of misoprostol and we mainly distribute to the MWs. For the AMWs, although it is in their manual, there is no clear guideline for distribution and usage by the central health authority… so what should we do"

(Township level health care provider from key informant interview)

AMWs also seemed uncertain about how and where to procure it. An AMW from a rural area stated:

"…we are willing to give misoprostol to the mothers, but currently only the MW give it, we are not allowed to give it…and we don't have the drug either"

(AMW in hard-to-reach area during FGD with AMWs)

According to the district level key informant interviews, each township seemed to have different practices with respect to misoprostol according to the township medical officer's authority. In the study township, there seemed to be no restriction on the distribution of misoprostol to the AMWs by the MWs.

"…the trend is changing [meaning involving all community base health workers] and we allow them [AMWs] to deliver non risk cases, you see old ones [AMWs] are delivering well and I think giving misoprostol would not be a bad idea. You see if our midwives are allowed to use misoprostol and they [AMWs] are not, it is hard for them to survive in the community. Our midwives give drugs and they [AMWs] are only allowed to rub the abdomen. I think that is not fair, they are the main persons in the community."

(Township level health care provider from key informant interview)

MWs in the study similarly mentioned that they were willing to give misoprostol to AMWs. Some of the MWs in the study had already distributed misoprostol to AMWs, especially in hard-to-reach areas and to those whom they trust.

"We give the misoprostol together with the CDK [clean delivery kit] to all the AMWs in our areas. For those who are near to us, there is no problem because it is easy to monitor and refer if needed. But for those in the hill hard-to-reach, there is no-one apart from them. We tell them again and again when to give the drug [misoprostol], only after the birth of the baby and not to use it any other time"

(MW assigned in the hard-to-reach area during FGD with MWs)

However, some of the key informant interviewees mentioned that they worried about the misuse of misoprostol to induce abortion, but MWs and AMWs in the FGDs did not mention anything in relation to abortion, potentially because induced abortions are illegal in Myanmar and are therefore a highly sensitive topic.

"I always tell the AMWs to give the drug [misoprostol] only after the baby is born as it is very dangerous if is given before the delivery of the baby and because they are away from me during the time of the actual birth. I worry that they would use it early"

(MW from hard-to-reach area during FGD with MWs)

One of the reasons for this concern was that the drug's commonly used name in Myanmar language, "tha ein pwint say" (the ein: uterus; pwint: open; say: medicine), literally means "a drug that enhances the opening of the uterus", creating misunderstanding among the users. Thus it was now purposely referred to as "tha ein kyunte say" (the ein: uterus; kyunte: contract; say: medicine), literally meaning contraction of the uterus, in most of the trainings.

"You see they [AMWs] know it as "Tha ein pwint say" and we are worried that they would use it before delivery thinking that it will enhance labour. So we emphasize in the training as "tha ein kyunte say" and we stress that it can only be given after the birth of the baby"

(Township level trainer of AMWs from key informant interview)

AMWs in the FGDs stated that they are willing and confident to take on the task of administering misoprostol during home deliveries. In addition, many of the AMWs expressed their frustration about not being allowed to provide any drugs to help a woman who is relying on her for care in time of danger.

"When something happens, they [mothers] are with sad faces. They come to us with a small face [meaning a look of helplessness] saying we need you to treat us… The thing is that it is not that we cannot do it [give misoprostol], but we are not allowed to do it and we are scared to do it [scared of being punished rather than scared of giving the drug] …we are afraid"

(AMW in hard-to-reach area during FGD with AMWs)

AMWs in the study considered that giving this life-saving drug would increase not only trust by the community but also increase their self-confidence in managing deliveries. However, some of the AMWs in the study highlighted the need for refresher training about postpartum haemorrhage and standardized dosage guidelines in using misoprostol.

"we need training on postpartum haemorrhage and also how to prevent and treat before referring as is a life threatening event. We are confident to give the drug if we are trained properly and clearly teach us on how many tablets to give and when to give… we will follow what is taught"

(AMW in hard-to-reach area during FGD with AMWs)

It became clear that there are no consistent guidelines at township level for distribution of misoprostol. The township level health care providers mentioned that they would be willing to distribute misoprostol to the AMWs if there was a clear written approval from the national level health authorities regarding the dosage and timing of drug delivery. Providers stressed that misoprostol should only be distributed to AMWs after systematic training about the benefits, side effects and correct time for usage.

Training of AMW

According to the most recent AMW training curriculum in Myanmar, AMWs are taught a three-months theory and three-months practical training at the township or the respective station hospitals. Although delivery and postpartum care are meant to be taught through three hour long theoretical lectures each with 20 h of practical training, most of the participants in the study stated that theory was taught in a one-way lecturing format with minimal supervised practical training. Active management of the third stage of labour had been included in the training, however information provided for the use of misoprostol was inconsistent. Within the last five years, there have been three versions of the standard

training guidelines in which the dose of misoprostol was different. The first guideline stated two tablets (400 μg), the second guideline did not specify the dosage and the latest guideline stated three tablets (600 μg) immediately after the birth of the baby. As a result, within the same township, AMWs had access to conflicting guidelines.

"No, it [management of postpartum haemorrhage] was not taught… we were told to give [misoprostol] after the birth of the baby… not really clear explanation."

(AMW from non-hard-to-reach area during FGD with AMWs)

As a result, some of the AMWs explained that because the training was not clear, they had no option but to just refer patients to the health facility.

"we don't wait…we just refer as early as possible if is of risk…like multipara…"

(AMW from non-hard-to-reach area during FGD with AMWs)

The information about the use of misoprostol as part of active management of third stage of labour by AMWs is included in the latest 2015 curriculum for AMWs, using a WHO standard dose of 600 μg (3 tablets) after the birth of the baby. However, the manual does not specifically state that AMW are allowed to administer misoprostol. Ongoing refresher trainings and newly trained AMWs in 2015 are said to be using the new guidelines.

Discussion

Our work sought to reignite discussion on the potential for task shifting of misoprostol administration to AMWs by investigating the acceptability and feasibility of this intervention. The findings showed that AMWs generally were trained on the active management of third stage of labour, including the use of misoprostol, but not all AMWs reported using misoprostol in practice. Supportive reasons for task shifting administration of oral misoprostol to AMWs included discussions around the good relationship and trust between AMWs and MWs, whereby MWs felt confident distributing misoprostol to AMWs. However, the lack of clear government-level written permission to distribute the drug was perceived as a barrier to task shifting.

Overall in Myanmar, postpartum haemorrhage remains the leading cause of maternal mortality, accounting for 30% of maternal deaths. Equipping AMWs with the skills and resources to effectively prevent postpartum haemorrhage will be an essential component of efforts to reduce the incidence of postpartum haemorrhage. Although WHO guidelines recommend delivery of an injection of oxytocin as the first-line pharmacotherapy for the prevention and treatment of postpartum haemorrhage, the law in Myanmar restricts the use of injections by AMWs. Oral misoprostol is also an effective drug for the prevention of postpartum haemorrhage and is recommended by the WHO as a drug that could be used by AMWs in resource-limited settings [17]. Studies have also found that community-based distribution of misoprostol using a community level health worker was effective for prevention of postpartum haemorrhage [23–25]. According to a study done by Thein Thein Htay in 2007, the use of oral misoprostol by MWs at the community level has proven to be safe and effective for prevention of postpartum haemorrhage in Myanmar since 2007 and was considered for nationwide distribution to MWs and AMWs [26]. However, competing priorities such as disease control activities over the past decade and frequent changes in policy-makers have hampered progress towards this goal.

A major enabling factor to task shifting misoprostol administration to AMWs was the recognition amongst community members, healthcare providers and policy makers of the critical role played by AMWs in providing care during childbirth, particularly in hard-to-reach areas. Home births remain common in Myanmar with over 70% of deliveries occurring outside of a health facility [27]. Our findings suggest this to be due to a combination of factors including convenience, cultural preference and significant geographical constraints, which restrict the accessibility of healthcare facilities by people in the hard to reach areas. Thus the roles of MWs and AMWs are essential as these community-based providers are often called upon to attend home births. Studies have also shown that community health workers are competent not only in pregnancy and childbirth practices, but also in providing other health related services such as nutrition promotion, immunization and disease control activities [28, 29].

In our study area, AMWs were considered by community members and key informants to be capable providers of care during childbirth. As such, distribution of oral misoprostol to AMWs was considered by the midwives and key informants sampled in this study to be a potentially effective and feasible option for the prevention of postpartum haemorrhage where skilled birth attendants are not available. AMWs themselves reported to be able and willing to take on the task of misoprostol administration and welcomed the opportunity to expand their capacity to provide improved care during delivery.

A number of barriers to task shifting of misoprostol to AMWs were identified by study participants. Some key informants mentioned fear of untimely misoprostol use before the child is born, or when used to induce abortion, particularly if sufficient training and standardised policies and procedures were not in place. Interestingly, the use of misoprostol to induce abortion was not mentioned by MWs and AMWs, likely because they know it is illegal to use misoprostol for this indication. Studies

on the use of misoprostol for prevention of postpartum haemorrhage have helped to address these concerns, and a comprehensive review of 18 programs using lay health care workers to provide misoprostol found very low rates of incorrect use [23–25]. This suggests that AMWs in Myanmar have considerable potential to administer misoprostol correctly if provided with sufficient training. AMWs themselves also spoke about inconsistent quality of training, and some highlighted a paucity of information in their training regarding postpartum haemorrhage and the rationale for using misoprostol. A review done by Prata et al. in 2013 stated that along with a national policy and drug distribution mechanisms for misoprostol, adequate provision of information and training should be included for lay health workers and the community [23]. The findings suggest that MWs and township-level health providers would be confident in the ability of AMWs to administer misoprostol correctly with additional refresher trainings. Some of the AMWs in our study were already administering misoprostol, further highlighting the need for clear guidelines, consistent policies and adequate training.

This study suggests that oral misoprostol is a viable option to prevent postpartum haemorrhage especially for hard-to-reach areas where AMWs are the primary attendants for home births.

Limitations of the study

The study township was purposively selected based on its 'hard-to-reach' characteristics and as such, findings might not be representative of the perspectives of equivalent stakeholders in other townships in Myanmar, potentially limiting generalization of the findings to other areas. The relationships between the AMWs and the MWs in the study were very positive and it may be due to the social desirability bias of their relationship that actual practice may vary.

Conclusion

With over 30% of the maternal deaths in Myanmar due to postpartum haemorrhage, it is time that health planners consider this evidence-based intervention for scale-up throughout the country. The findings of this study support the feasibility of task shifting of misoprostol to AMWs as a crucial intervention for the prevention of postpartum haemorrhage in Myanmar.

Additional file

Additional file 1: Interview guides for focus group discussions and in-depth interviews, used as part of the study are available in the supplementary files, and entitled:" Qualitative interview guides and questionnaire". (DOCX 54 kb)

Abbreviations

3MDG: The Three Millennium Development Goal Fund; AMW: Auxiliary midwife; COREQ: The consolidated criteria for reporting qualitative research; FGD: Focus group discussion; IDI: In-depth interviews; MW: Midwife; WHO: World Health Organization

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Availability of data and materials

Data will be available on request as this is part of a larger study on "The role of Auxiliary Midwives in community-based maternal and child health care in Myanmar: an assessment of the feasibility of task shifting".

Authors' contributions

KKT contributed to study design, data collection, data analysis and led the first draft of the manuscript. YM contributed to data analysis and development of the manuscript. VO contributed to data collection, data analysis and development of the manuscript. TG contributed to study design and development of the manuscript. TZL contributed to data collection, data analysis and development of the manuscript. JGB contributed to study design and development of the manuscript. SL contributed to study design, data analysis and led the revisions of the manuscript. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable.

Ethics approval and consent to participate

Ethical approval for the study was obtained from the Proposal and Ethical Review Committee of the Department of Medical Research, Ministry of Health and Sports Myanmar (approval number 42A/ethics/DMR/2015) and from The Alfred Hospital Ethics Committee in Australia (approval number Project 150/15). Approval to conduct the study was also obtained from the Ministry of Health and Sports after obtaining the ethical approval from the Department of Medical Research. Written information was provided to all participants in Myanmar language and written consent obtained. A verbal explanation was provided for illiterate participants, who consented by marking the form with a thumbprint. Consent forms were stored in a secure location at Burnet Institute.

Publisher's Note

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Appendix B: Characteristics of respondents in the FGDs and IDIs

Summary of FGDs conducted for AMW task shifting study

NUMBER OF PARTICIPANTS	HARD-TO-REACH/NON-HARD=TO REACH	DESCRIPTION OF PARTICIPANTS
5	**Hard-to-reach**	AMWs with service year less than 10 years
6		AMWs with mixed service year
8		MWs assigned in hard-to-reach villages in Ngepe township
8		Mothers with a child under the age of three years in hard-to-reach village
5		Mothers with a child under the age of three years in hard-to-reach village
8		Community members from hard-to-reach village
8		Community members from hard-to-reach village
9	**Non hard-to-reach**	AMWs with service year more than 10 years
8		AMWs with service years less than 10 years
5		AMWs with mixed service years
7		MWs assigned in non-hard-to-reach villages in Ngepe township
9		Mothers with a child under the age of three years in non-hard-to-reach village
7		Mothers with a child under the age of three years in non-hard-to-reach village
9		Community members from non-hard-to-reach village
11		Community members from non-hard-to-reach village

Summary of KIIs conducted for the AMW task shifting study

NO OF KIIS	DESCRIPTION OF PARTICIPANT
1	Central level key informant from Department of Health (MCH)
1	Central level key informant from Department of Health (Public Health)
1	Central level key informant from Department of Health (Public Health)
1	District Medical Officer (Magwe)
1	District Medical Officer (Yangon)
1	Township Medical Officer (Ngepe)
1	Township Health Nurse (Ngepe)
1	Township Health Assistant (Ngepe)
1	3 MDG Fund UNOPS [Public Health Officer (MNCH)]
1	3 MDG Fund UNOPS (Person responsible for AMW funding and monitoring)

Summary of FGDs conducted for Inhaled Oxytocin study

NUMBER OF PARTICIPANTS	RURAL /URBAN	DESCRIPTION OF PARTICIPANTS
10	Urban	MWs in South Dagon township
7		Functioning AMWs in South Dagon township
8		Mothers with a child under the age of three years in South Dagon township who gave birth at home
8		Mothers with a child under the age of three years in South Dagon township who gave birth at hospital
9	Rural	Functioning AMWs in Ngape township
8		MWs in Ngape township
5		Functioning AMWs in Ngape township
8		Mothers with a child under the age of three years in Ngape township
8		MWs in Thanlyin township
7		Functioning AMWs in Thanlyin townships
6		Mothers with a child under the age of three years in Thanlyin township

Summary of IDIs conducted for the inhaled oxytocin study

NO OF IDI	DESCRIPTION OF PARTICIPANT	STRATIFICATION
Facility-based birth attendants		
1	Township Medical Officer (Township hospital)	Rural
1	Health Assistant (Rural Health Centre)	
1	Staff nurse (Township hospital)	
1	Township Medical Officer (Township hospital)	Urban
1	Staff nurse (Township hospital)	
1	Medical Officer (Maternal and Child Health Centre)[2]	
Obstetricians		
1	OBGYN – Private hospital/ O&G Society President (Myanmar Medical Association)	Private
1	OBGYN – Private clinic	
1	OBGYN – District hospital	Public
1	OBGYN – General hospital	
1	OBGYN – Central Women Hospital	
Key informants		
2	Regulatory affairs managers (pharmaceutical industry)	
1	Maternal and Child Health National Program Officer (UNFPA)	
2	Burnet Institute, Myanmar Staff (Informal interviews)	

Appendix C: Questionnaires and Guides

Appendix C1: Guides and questionnaires used for the AMW task shifting study

Qualitative Guides used for FGDs and IDIs (English Language)

Focus group discussion guides and key informant interview guides for Midwives, Auxiliary Midwives, Mothers, Community members, Policy makers and Health Care Providers used for the study entitled: "The role of Auxiliary Midwives in community-based maternal and child health care in Myanmar: an assessment of the feasibility of task shifting"

Notes:

Brief questionnaires were used before the focus group discussions and key informant interviews to obtain participant characteristics.

Guides and questionnaires are presented in standard English language. All questionnaires were translated into Myanmar language for use in the study.

Participant group: <u>Mothers with under three year old children</u>

Focus Group Discussion Guide and characteristics questionnaire (standard English-language version)

We invite you to answer the following questions that will tell us a little more about you and your background. This questionnaire is part of the study on role of AMWs in your community being done by Department of Health and Burnet Institute. You can choose not to answer any question. Your privacy will be respected and you do not have to provide your name. When the study results are published or shared, no names or identifying information will be used.

Age (in completed years)	
Marital Status 1. Single 2. Married 3. Divorced/ Separated 4. Widowed	
What is the highest level of education attained? 1. Primary 2. Secondary 3. High School 4. University 5. Graduate	
Number of children currently alive?	
Age of the youngest child (in months)	
Place of Childbirth of the last child? 1. Home 2. Facility (Government /Private) 3. Others (specify)_____	
Who was the main person assisting your delivery? 1. Doctor 2. LHV/HA 3. MW 4. AMW 5. TBA 6. Others (specify)_____	
Did you use any medication during/after your last childbirth? If so please specify : 1. Oral drugs (Western) Yes (1) No (0) 2. Traditional herbal Medicine (Oral) Yes (1) No (0) 3. Traditional herbal Medicine (Inhalant) Yes (1) No (0) 4. Injections Yes (1) No (0) Others (specify)	
Did you have any complications with your last delivery? If yes please specify:	
What is your average monthly family income? (in Kyats)	

Themes, Questions and Probes

Current Practices around childbirth

Can you all tell me about how women in your community practice childbirth?

- *With whom do women usually give childbirth?*
- *Where do women give childbirth normally?*
- *What are the reasons for giving childbirth at home or at facility?*
- *Who makes the decision around childbirth?*

Medications at the time of childbirth

Can you tell me about medications that are used during or after childbirth?

- *Do women use any medications during or after childbirth?*
- *Would women want medication used at childbirth? Why/why not?*
- *What types of medication are used?*
- *Who normally provides medication around the time of childbirth?*
- *How much do they cost (if known)?*
- *Who decides what medications are used?*

Types of health care providers in the village and their role

Can you tell me how many health care providers are in the village for women and children?

- *Who they are?*
- *How are they different from each other in term of age and experience?*
- *How are they different in terms of ability to access services? Probe: Why?*
- *How are they different from each other in terms of quality of care? Probe: Why?*
- *How are they different in providing antenatal care, childbirth and post-natal care? Probe: Why?*
- *How are they different in providing other services (immunization, contraception etc.)? Probe why?*
- *How do they differ in other roles? (community activities, counseling and giving advice)?Probe why?*

How do families in the village choose providers for care during childbirth?

- *Social relationship, trust, cost, availability etc.*
- *How was the decision made?*
- *What are the most important factors in making this decision?(money, trust, availability)*
- *Who is involved in the decision making?*

Attitudes towards AMWs

What do women in your village think about the AMWs in your village?

- *What is the impression on her skill?*
- *Does she meet the expectations? Why/ why not (satisfied/not)*
- *What do you value most about her?*
- *Do you expect her to do more things and can you tell me what they are?*
- *What are the benefits of using an AMW?*
- *What are the reasons for NOT using an AMW?*

What are the barriers to women using an AMW in your village?

- *How is her accessibility?*
- *How is her availability?*
- *Does she charge for her service and how much?*
- *Do people in the community like and trust her? Probe: why/why not*

Expectation of the services provided by AMWs

What services do you expect AMWs to be able to provide?

- *Preventive care services (health education, counseling etc)*
- *Curative care services (e.g. giving medication and injections)*
- *Is there anything you would expect her to do that she is not currently doing?*

Is the community happy to have an AMW?

- *Is there a benefit of having an AMW in your village (why/why not)*
- *What changes could you see after having an AMW in your village?*

Task shifting possibilities

What would/do the community think about AMWs giving oral medications to women during or after childbirth?

- *Is it acceptable or not acceptable?*
- *Do you think it is/would be effective?*

What would the community think about AMWs trying to resuscitate newborn babies that are not breathing?

- *Is it acceptable or not acceptable?*
- *Do you think it is/would be effective?*

Is there anything you all would like to add or give suggestions for AMWs in your village or in other villages?

Participant group: <u>Community members</u>

Focus Group Discussion Guide and characteristics questionnaire (standard English-language version)

We invite you to answer the following questions that will tell us a little more about you and your background. This questionnaire is part of the study on role of AMWs in your community being done by Department of Health and Burnet Institute. You can choose not to answer any question. Your privacy will be respected and you do not have to provide your name. When the study results are published or shared, no names or identifying information will be used.

Age (in completed years)	
Sex Male (1) Female (2)	
Marital status 1. Single (Skip question on number of child) 2. Married 3. Divorced/ Separated 4. Widowed	
What is the highest level of education attained? 1. Primary 2. Secondary 3. High School 4. University 5. Graduate	
Occupation 1. Dependent/ retired 2. Manual Laborer 3. Farmer/ Crop production 4. Own business (Small) 5. Own business (Large) 6. Government Employee 7. Others (specify)	
Number of children currently alive?	
What is your average monthly income? (in Kyats)	

Themes, Questions and Probes

Current Practices around childbirth

Can you all tell me about how women in your community practice delivery?

- *With whom do women usually give childbirth?*
- *Where do women give childbirth normally?*
- *What are the reasons for giving childbirth at home or at facility?*
- *Who makes the decision around childbirth?*

Medications at the time of childbirth

Can you tell me about medications that are used during or after childbirth?

- *Do women use any medications during or after childbirth?*
- *Would women want medication used at childbirth? Why/why not?*
- *What types of medication are used?*
- *Who normally provides medication around the time of childbirth?*
- *How much do they cost (if known)?*
- *Who decides what medications are used?*

Types of health care providers in the village and their role

Can you tell me how many health care providers are in the village for women and children?

- *Who they are?*
- *How are they different from each other in term of age and experience?*
- *How are they different in terms of ability to access services? Probe:why?*
- *How are they different from each other in terms of quality of care? Probe: why?*
- *How are they different in providing antenatal care, childbirth and post-natal care? Probe:why?*
- *How are they different in providing other services (immunization, contraception etc.)? Probe:why?*
- *How do they differ in other roles? (community activities, counseling and giving advice)? Probe:why?*

How do families in the village choose providers for care during childbirth?

- *Social relationship, trust, cost, availability etc.*
- *How was the decision made?*
- *What are the most important factors in making this decision?*
- *Who is involved in the decision making?*

Attitudes towards AMWs

What do people in your village think about the AMW in your village?

- *What is your impression on her skill?*
- *Does she meet your expectations? Why/ why not (were u satisfied)*
- *What do you value most about her?*
- *Do you expect her to do more things and can you tell me what they are?*
- *What is the benefit of using an AMW?*
- *What are the reasons for NOT using an AMW?*

What are the barriers to women using AMW in your village?

- *How is her accessibility?*
- *How is her availability?*
- *Does she charge for her service and how much?*
- *Do people in the community like and trust her?Probe: why/ why not*

Expectation of the services provided by AMWs

What services do you expect AMWs to be able to provide?

- *Preventive care services (health education, counseling etc)*
- *Curative care services (e.g. giving medication and injections)*
- *Is there anything you would expect her to do that she is not currently doing?*
- *Is there a benefit of having a AMW in your village (why/why not)*
- *What changes could you see after having an auxiliary midwife in your community ?*

Task shifting possibilities

What would/do the community think about AMWs giving oral medications to women during or after childbirth?

- *Is it acceptable or not acceptable?*
- *Do you think it is/would be effective?*

What would the community think about AMWs trying to resuscitate newborn babies that are not breathing?

- *Is it acceptable or not acceptable?*
- *Do you think it is/would be effective?*

Is there anything you all would like to add or give suggestions for AMWs in your village or in other villages?

Participant group: <u>Auxiliary Midwives (AMWs)</u>

Focus Group Discussion Guide and characteristics questionnaire (standard English-language version)

We invite you to answer the following questions that will tell us a little more about you and your background. This questionnaire is part of the study on role of AMWs in your community being done by Department of Health and Burnet Institute. You can choose not to answer any question. Your privacy will be respected and you do not have to provide your name. When the study results are published or shared, no names or identifying information will be used.

Age (in completed years)	
Marital status 1. Single 2. Married 3. Divorced/ Separated 4. Widowed	
What is the highest level of education attained? 1. Primary 2. Secondary 3. High School 4. University 5. Graduate	
Years of practice as an AMW (in years)	
Average number of deliveries per year as a primary birth attendant (in numbers)	
When were you trained as an AMW? (exact year)	
How long was this training (in weeks/ months/ years)	
When was the last training that you received on maternal and child health? (exact year)	
Occupation 1. Dependent/ retired 2. Manual Laborer/ Daily wager 3. Farmer/ Crop production 4. Own business (Small) 5. Own business (Large) 6. Government Employee 7. Only works as an AMW 8. Others (specify)	
Do you give any medication during/after childbirth to women? If so please specify: 1. Oral drugs (Western) Yes (1) No (0) 2. Traditional herbal Medicine (Oral) Yes (1) No (0) 3. Traditional herbal Medicine (Inhalant) Yes (1) No (0) 4. Injections Yes (1) No (0) 5. Others (specify)	

Themes, Questions and Probes

Current Practices around childbirth

Can you tell me what you do during childbirth for women in your community?

- *Can you tell me how you take care of a woman during childbirth*
- *Do you manage it alone or were you helped by others? (family members, TBAs etc.)?*
- *Have you encountered any emergencies?*
- *How was it managed?*
- *How do you refer a woman? (When, how?)*

Practice of medications at the time of childbirth

Can you tell me about medications that are used during or after childbirth?

- *Do you use/practice any type of medicines for childbirth and post-natal periods? (oral, injections, traditional medicine)*
- *Do women in the community demand/ expect for any type of medication during and after childbirth? Why/why not?*
- *What types of medication are used?*
- *How did you get the medicine?*
- *How about the cost?*

Types of health care providers in the village and their role

Can you all tell me how many health care providers are in the village for women and children?

- *Who they are? (MWs, TBAs and others)*
- *How are they different from you in term of skill, age and experience?*
- *In your opinion are the roles different from each other? (Role difference and overlap)*
- *Do you collaborate with them? If so, how?*
- *Joint practices and helping each other?*
- *Have you ever experienced difficulties in dealing with MWs, TBAs or other healthcare providers?What type of women chooses to deliver with you and why?*

Challenges of providing services as AMWs

Can you tell me the difficulties in carrying out your role as an AMW?

- *What are the major challenges of being an AMW?*
- *What is needed to fulfil your role?*

- *Do you think you have enough skill to carrying out your assigned activities?*
- *Do you think that you were trained well during your training?*
- *Do you have all the necessary equipment and supplies to carry out your activities?*

What are the challenges faced in providing quality care during the time of childbirth?

- *What do they expect you to do?*
- *What are the main barriers in fulfilling the community expectations?*
- *Was the community supportive of your activities (Yes/no, WHY)*
- *Do you have any difficulties dealing with the community?*

Do you think you need more support?

- *In what ways? (incentives, moral, financial support, supervision)*
- *From who? (Community, health care provider: midwives, TMO etc.)*
- *What? (skill, equipment, training etc)*

Feasibility of the four specific tasks for AMWs

As an AMW, do you think providing the following interventions would be feasible and acceptable?

- *Have you given any oral medication to pregnant women?*
- *If you need to be giving oral medication what are the challenges?*
- *Have you ever used misoprostol to prevent PPH?*
- *Do you think it will be feasible to provider oral misoprostol to prevent PPH? What are the challenges?*
- *Have you ever used misoprostol to treat PPH?*
- *Do you think it will be feasible to provide oral misoprostol to treat PPH? What are the challenges?*
- *Have you ever used oral antibiotics to treat puerperal sepsis?*
- *Do you think it will be feasible to provide oral antibiotics to treat puerperal sepsis? What are the challenges?*
- *Have you ever resuscitate a newborn using bag and mask?*
- *Do you think it will be feasible to resuscitate a newborn using bag and mask? What are the challenges?*

Participant group: <u>Midwives (MWs)</u>

Focus Group Discussion Guide and characteristics questionnaire (standard English-language version)

We invite you to answer the following questions that will tell us a little more about you and your background. This questionnaire is part of the study on role of AMWs in your community being done by Department of Health and Burnet Institute. You can choose not to answer any question. Your privacy will be respected and you do not have to provide your name. When the study results are published or shared, no names or identifying information will be used.

Age (in completed years)	
Marital status 1. Single 2. Married 3. Divorced/ Separated 4. Widowed	
What is the highest level of educational attained (specify) 1. Primary 2. Secondary 3. High School 4. University 5. Graduate	
When did you start working as a MW? (exact year)	
How long have you been posted in this township? (in years)	
Average number of deliveries per year as a primary birth attendant? (in numbers)	
How long have you been supervising AMWs (in years)	
Do you give any medication during/after childbirth to women? If so please specify: 1. Oral drugs (Western) Yes (1) No (0) 2. Traditional herbal Medicine (Oral) Yes (1) No (0) 3. Traditional herbal Medicine (Inhalant) Yes (1) No (0) 4. Injections Yes (1) No (0) 5. Others (specify)	

Themes, Questions and Probes

Current Practices around childbirth

Can you tell me how you manage childbirth and post-partum period for women in your community?

- *What do you normally do when a women seeks you for childbirth and postnatal care?*
- *Do you manage it alone or were you helped by others?(family members, TBAs, AMWs etc)*
- *Have you encountered any emergencies?*
- *How was it managed?*
- *How do you refer a woman? (when, how?)*

Practice of medications at the time of childbirth

Can you tell me about medications that are used during or after childbirth?

- *Do you use/practice any type of medicines for child childbirth and post-natal periods? (oral, injections, traditional medicine)*
- *Do women in the community demand/ expect for any type of medication during and after childbirth? Why/why not?*
- *What types of medication are used?*
- *How did you get the medicine?*
- *How about the cost?*

Types of health care providers in the village and their role

Can you all tell me how many health care providers are in the village for women and children?

- *Who they are? (AMWs, TBAs and others)*
- *How are they different from you in term of skill, age and experience?*
- *In your opinion are the roles different from each other? (Role overlap)*
- *Do you collaborate with them? If so, how?*
- *Joint practices and helping each other?*
- *Have you ever experienced difficulties in dealing with AMWs, TBAs or other healthcare providers?*
- *What type of women chooses to deliver with you and why?*

Attitude towards AMWs

Can you tell me what you all think about AMWs?

- *What is your impression on her skill and her performance?*
- *What is your expectation towards AMWs?*
- *Does she meet your expectations? Why/ why not (satisfied/not)*
- *Do you expect her to do more things and can you tell me what they are?*
- *What do you value most about her?*
- *Is there anything you would expect her to do that she is not currently doing?*
- *Is there a benefit of having a AMW (why/why not)*
- *What changes could you see after having an AMWs in your community?*

Feasibility of the four specific tasks for AMWs

As an MW do you think it is feasible and acceptable for AMWs to provide the following interventions?

- *Oral medication to pregnant women?*
- *Oral misoprostol to prevent PPH? What are the challenges?*
- *Oral misoprostol to treat PPH? What are the challenges?*
- *Oral antibiotics to treat puerperal sepsis? What are the challenges?*
- *Resuscitating a newborn using bag and mask?*
- *In what circumstances do you think it would be ok for AMWs to provide these services (places, training, situations etc)? What are the challenges?*

Participant group: <u>Policymakers and Health Care Providers</u>

Key Informant Interview Guide and characteristics questionnaire (standard English-language version)

We invite you to answer the following questions that will tell us a little more about you and your background. This questionnaire is part of the study on role of AMWs in your community being done by Department of Health and Burnet Institute. You can choose not to answer any question. Your privacy will be respected and you do not have to provide your name. When the study results are published or shared, no names or identifying information will be used.

Age (in completed years)	
Highest level of educational attainment (specify) 1. Primary 2. Secondary 3. High School 4. University 5. Graduate	
How long have you worked in the government service?(in years)	
What is your current post? (specify)	
How long have you been posted in the current position? (in years)	
What is your role in AMW program at your township/position (specify) 1. Recruitment Yes (1) No (0) 2. Training Yes (1) No (0) 3. Supervision Yes (1) No (0) 4. Planning Yes (1) No (0) 5. Others (specify)	

Themes, Questions and Probes

Types of health care providers in the village and their role

Can you tell me how many health care providers are at the community level for women and children?

- *Who they are?*
- *How are they different from each other in term of skill, age and experience?*
- *How are they different in providing antenatal care, childbirth and post-natal care?*
- *How are they different in providing other services (immunization, contraception etc.)?*
- *How do they differ in other roles? (community activities, counseling and giving advice)?*

Can you tell me the current role of AMW in maternal and child health care?

Do you think AMW are performing beyond her role?

- *Hard to reach areas*
- *Unreached by supervision*
- *What types of activities are carried out?*
- *What is your opinion?*

Attitude towards AMW

What is your opinion about the need for AMW and whether they are fulfilling that need?

- *Necessary cadres or not?*
- *What do you think of their skills?*
- *What do you think of their performance with in the community?*
- *Any concerns towards their role?*

Effectiveness of the AMW programme

What is the main aim of the AMW programme?

Do you think the objectives of the programme have been met or will be met in the future? Why/why not?

What are the main challenges of the AMW programme in your township?

- *Recruitment*
- *Training*
- *Supervision*
- *Logistics*

- *Reports and feedback*

How are these difficulties being managed?

Task shifting possibilities

Have you ever heard of the task shifting guideline before?

What tasks do you think AMW can perform?

What will be the pros and cons of adding new task to the AMWs role?

Do you think it is feasible and acceptable for AMWs to provide the following interventions?

- Oral medication to pregnant women?
- Oral misoprostol to prevent PPH? What are the challenges?
- Oral misoprostol to treat PPH? What are the challenges?
- Oral antibiotics to treat puerperal sepsis? What are the challenges?
- Resuscitating a newborn using bag and mask?

In what circumstances do you think it would be ok for AMWs to provide these services (places, training, situations etc)?

What are the challenges?

What are the necessary skills, equipment and procedures?

The role of Auxiliary Midwives in community-based maternal and child health care in Myanmar: an assessment of the feasibility of task shifting

Quantitative questionnaire for AMWs

IDENTIFICATION

1. ID Number _____ |__|__|__|
2. Village name_____ |__|__|
3. Name of sub RHC assigned _____ |__|__|
4. Name of RHC assigned_____ |__|__|
5. Township name __ __ __ (01) Gangaw (02) Ngape (03) Seit Phyu |__|__|
6. Hard to reach village as identified by 3 MDG criteria 1. Yes 2. No |__|

Section 1: Background characteristics			Coding
1.	How old were you at your last birthday?	__ __ (years)	|__|__|
2.	What is the highest level of education attained?	1. Primary education (4th standard) 2. Secondary education (8th standard) 3. High School education (10th standard) 4. University/Institutional 5. Graduate	|__|
3.	Of what ethnic group are you?	1. Bamar 2. Others, specify _____	|__|
4.	How long have you lived in this village?	__ __ (years)	|__|__|
5.	Any other job (main) apart from AMW work?	1. Dependent (Go to 6 b) 2. Household work (Go to 6 b) 3. Manual laborer/Daily wager 4. Farmer/Crop production 5. Own business (small) 6. Own business (large) 7. Government employee 8. Others (specify)_____	|__|
6. (a)	Income per month (kyats) from other job	_____ Kyats |__|__|__|__|__|__|	
6. (b)	Average total family income per month (kyats)	_____ Kyats |__|__|__|__|__|__|	

7.	Total number of family members	_____Number	|__|__|
8.	What is your current marital status?	1. Single (skip to Q 10) 2. Married 3. Divorced/Separated 4. Widowed	|__|
9.	If married, How many living children do you have?	_____ number	|__|__|
10.	Do you have a mobile phone	1. Yes 2. No	|__|
Section 2: Training and supervision			
11.	When did you receive your first AMW training?	_____ exact year	
12.	Duration of your first AMW training?	_____ months	|__|
13.	How long have you been working as an AMW? (enter 00 if is less than 1 year of service)	_____ years	|__|__|
14.	Have you ever received any refresher training?	1. Yes 2. No (skip to Q 17)	|__|
15.	How many refresher trainings did you receive?	_____number	|__|__|
16.	If yes, when was the last refresher training?	_____exact year	
17.	As an AMW do you provide antenatal care to the women in your community?	1. Yes 2. No (skip to Q 19)	|__|
18.	How many years in total have you been providing antenatal care service? (enter 00 if is less than 1 year of service)	_____years	|__|__|
19.	In the last one year have you received any training on the subject related to antenatal care? (multiple response question, Probe each answer and ask)	1. Antenatal screening (blood pressure, urine glucose and protein) 2. Counselling for antenatal care (nutrition, family planning, newborn care) 3. PMTCT or other HIV relating to pregnancy 4. Management of pre-eclampsia and eclampsia 5. Management of Post-partum	|__| |__| |__| |__| |__|

		haemorrage 6. Have not received any training 7. Others (specify) _____	 |__| |__|
20.	Being an AMW, do you personally provide delivery care to women in the community?	1. Yes 2. No (skip to Q 23)	|__|
21.	How many years in total have you been providing delivery care? (enter 00 if is less than 1 year service)	_____years	|__|__|
22.	Number of deliveries performed during your AMW working years	_____number	|__|__|__|
23.	In the last one year have you received any training on the subject related to delivery care? (multiple response question, Probe each answer and ask)	1. Routine care for labour and normal delivery 2. Usage of parto-graph 3. Active management of third stage of labour 4. Lifesaving skills for emergency obstetric care/ Basic EmOC 5. Management of post-partum haemorrage 6. Management of peuperial sepsis 7. Manual removal of placenta 8. Administration of magnesium sulphate for the treatment of severe pre-eclampsia or eclampsia 9. Have not received any training 10. Others (specify)_____	|__| |__| |__| |__| |__| |__| |__| |__ |__| |__|
24.	Being an AMW, do you personally provide new born care in the community?	1. Yes 2. No (Skip to Q27)	|__|
25.	How many years in total have you been providing new born care? (enter 00 if is less than 1 year service)	_____years	|__|__|
26.	In the past one year have you received any training on the following topics related to new born care (multiple response question, Probe each answer and ask)	1. Essential new born care (cord care, warming, exclusive breast feeding) 2. New born resuscitation using bag and mask	|__| |__|

27.	Do you receive any technical support or supervision in your work? If so when was the most recent time?	1. Yes, in the past 3 months 2. Yes, more than 3 months ago 3. No, never been supervised	|__|
28.	Within the last 6 months, have you been supervised by your Midwife?	1. Yes 2. No (Skip to Q31)	|__|
29.	If yes, how many times were you supervised within the last 6 months?	_____number	|__|__|
30.	Are you satisfied with your supervision?	1. Very satisfied 2. Satisfied 3. Just satisfied 4. Not very satisfied 5. Not satisfied at all	|__|
31.	Did you get any training to do the reports and returns?	1. Yes 2. No	|__|
32.	Do you have to do any reports and returns?	1. Yes 2. No (Skip to Q35)	|__|
33.	If yes, how often do you have to send the reports and returns?	1. Weekly 2. Biweekly 3. Monthly 4. 3 monthly 5. 6 monthly	|__|
34.	Did you ever get any feedback for the reports and returns that you sent from your supervisor	1. Yes 2. No	|__|
Section 3: Knowledge on antenatal, delivery and post-natal care			
35.	Can you please tell me about the topics that you discuss in antenatal care to a pregnant woman (no probes listen and tick to all that apply)	1. Importance of skilled birth attendant 2. Importance of facility base delivery 3. Expected date of delivery 4. Antenatal care at least 4 visits 5. To get 2 TT injections 6. To take iron/folate acid tablets 7. Tell about danger signs during pregnancy 8. Telling to eat balance and extra amount of food 9. To take rest/ avoid heavy workload	|__| |__| |__| |__| |__| |__| |__| |__| |__|

		10. To save money for delivery and emergency	|__|
		11. Counsel on childbirth preparedness planning	|__|
		12. To seek care if there is health problem	|__|
		13. To arrange for emergency transport	|__|
		14. Exclusive breast feeding up to six months	|__|
		15. To feed colostrum	|__|
		16. To breast feed the baby as soon as possible	|__|
		17. Not to bathe the baby immediately after childbirth	|__|
		18. Nothing to apply to the umbilical stump	|__|
		19. Give information about blood testing for HIV/AIDS	|__|
		20. Give information about blood testing for Syphilis	|__|
		21. To sleep under bed net	|__|
		22. Personal hygiene and environmental sanitation	|__|
		23. Lactation amenorrhea	|__|
		24. To take regular check-ups with the midwife	|__|
36.	Which type of pregnant women should be referred to deliver at the hospital (no probes listen and tick to all that apply)	1. Under 18 year of age	|__|
		2. Above 35 years of age	|__|
		3. Below 4 feet and 10 inches	|__|
		4. Previous History of instrumental or operation delivery	|__|
		5. First pregnancy	|__|
		6. Multigravida (More than 5 children)	|__|
		7. Twin pregnancy	|__|
		8. Abnormal presentation of the fetus	|__|
		9. Other previous illnesses (heart	|__|

		disease, asthma, hypertension etc.) 10. Bad obstetric history (abortion, stillbirth) 11. Others (specify) _____	 |__| |__|
37.	Can you please describe the danger signs of pregnancy (no probes listen and tick to all that apply)	1. Vaginal bleeding 2. Convulsion/fits 3. Severe headache with blurred vision, vomiting 4. Fever and too weak to get out of bed 5. Severe abdominal pain 6. Fast and difficult breathing 7. Swollen fingers, face and legs with reduce urine output 8. Premature rupture of the membrane 9. High blood pressure 10. Reduce/loss of foetal movement 11. Others (specify) _____	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|
38.	Can you please describe the danger signs of delivery(no probes listen and tick to all that apply)	1. Waters break and not in labour after 6 hours 2. Labour pain (contractions) continue for more than 12 hours 3. Heavy bleeding before the placenta delivery (pad/ cloth soaked in less than 5 minutes) 4. Bleeding increases after the placenta delivery (pad/ cloth soaked in less than 5 minutes) 5. Placenta not expelled 1 hour after birth of the baby (Retained placenta) 6. Fast or difficult breathing 7. Convulsion/fits 8. Fever and too weak to get out of bed 9. Severe abdominal pain	|__| |__| |__| |__| |__| |__| |__| |__| |__|

		10. Foetal heart rate (below 120 or more than 160)	|__|
		11. Cord prolapse	|__|
		12. Transverse lie	|__|
		13. Breech presentation	|__|
		14. High blood pressure	|__|
		15. Dirty liquor or reduce liquor	|__|
		16. Others (specify) _____	|__|
39.	Can you please describe the danger signs of a new born (no probes listen and tick to all that apply)	1. Difficulty in breathing (more than 60 times per minutes (or) less than 30 times per minutes)	|__|
		2. Restless/ irritability (excessive crying)	|__|
		3. Umbilicus draining pus or umbilical redness extending to the skin	|__|
		4. Eye swollen and infected	|__|
		5. Convulsion/Fits	|__|
		6. Fever (Hyperthermia)	|__|
		7. Feels cold (Cold body temperature)	|__|
		8. Reduced feed or not able to feed	|__|
		9. Abscess of any part of the body	|__|
		10. Yellow coloration of skin	|__|
		11. Premature baby/small for date/low birth weight	|__|
		12. Others (specify) _____	|__|
40.	Can you tell me how many antenatal visits at least should a pregnant woman seek from a skilled birth attendant?	_____number	|__|
41.	Can you tell me the estimated timing that a woman should have her antenatal checks? (no probes listen and tick to all that apply)	1. As early as possible (first 4 months)	|__|
		2. 6 to 7 months	|__|
		3. 8 months	|__|
		4. 9 months	|__|

		5. No correct answers	|__|
42.	Can you tell me how many post-natal visits should a woman receive within 14 days of delivery?	_____number	|__|
43.	Can you tell me the exact days that you should go for postnatal visits? (no probes listen and tick to all that apply)	1. Within 24 hours 2. Day 2 or 3 3. Day 7 4. Day 14 5. No correct answers	|__| |__| |__| |__| |__|
Section 4: Practice of antenatal, delivery and post-natal care			
44.	How many pregnant women did you give antenatal care service have you performed for pregnant women in the last 6 months	_____number	|__|__|
45.	What are the main services that you normally provide during antenatal care(no probes listen and tick and all that apply)	1. AN registration 2. Measuring of weight 3. Measuring of height 4. Asking for past birth history 5. Abdominal examination 6. Measuring of blood pressure 7. Urine examination 8. Auscultation for foetal heart sound 9. Giving vitamin tablets 10. Giving vitamins injections 11. Counselling on nutrition 12. Asking for last menstrual period to estimate date of birth 13. Checking for signs of anaemia 14. Other (specify)_____	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|
46.	Where do you normally do antenatal care for pregnant mothers	1 At my home 2 Patient's home 3 Village head's house, community gathering place	|__|

		4 RHC/Sub Centre/MW clinic	
47.	Within the last 6 months how many pregnant women have you referred during antenatal care	_____number	|__|__|
48.	What is the most common reason for referral (please specify, single response)	1. Primigravida 2. Multigravida 3. Short stature 4. Twins 5. Abnormal presentations 6. Pre-eclampsia 7. Bad obstetric history 8. Pregnancy with disease 9. Abortion 10. Oedema 11. Hypertension 12. Post date for delivery 13. Age of mother (under 18/above 35) 14. Others (Specify)_____	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|
49.	Who do you normally refer to for antenatal care?	1. Doctor 2. Health Assistant 3. Lady Health Visitor/Nurse 4. Midwife	|__|__|
50.	Have you ever given oral medication to a pregnant woman?	1. Yes 2. No (skip Q52)	|__|__|
51.	If yes, what did you give? (multiple response and tick all that apply)	1. Iron/folate 2. Vitamins A 3. Deworming tablets 4. Vitamin B1 5. Paracetamol 6. Amoxil 7. ORS	|__| |__| |__| |__| |__| |__| |__|

		8. Burmeton 9. Other (specify) _____	|__| |__|
52.	How many deliveries have you performed in the last 6 months?	_____number	|__|__|
53.	Where do you normally conduct your deliveries?	1. At my home 2. Patient's home 3. Other (specify) _____	|__|
54.	Do you normally use a clean delivery kit for delivery?	1. Yes 2. No (Skip to Q57)	|__|
55.	How often do you use a clean delivery kit?	1. Always (80-100%) 2. Mostly (50-80%) 3. About half (50 %) 4. Sometime (25-50%) 5. Rarely (less than 25%)	|__|
56.	How many clean delivery kits do you have now?	_____number	|__|__|
57.	Have you ever used a partograph?	1. Yes 2. No (skip to Q 59)	|__|
58.	How often do you use a parto-graph to monitor and manage labour?	1. Always (80-100%) 2. Mostly (50-80%) 3. About half (50 %) 4. Sometime (25-50%) 5. Rarely (less than 25%)	|__|__|
59.	Can you tell me the procedures for active management of third stage of labour (AMTSL) (no probe and tick all that apply)?	1. Giving misoprostol as soon as the baby is delivered 2. Clean cord cut 3. Controlled cord traction and delivery of the placenta 4. Message of the suprapubic area 5. Checking the placenta for completeness	|__| |__| |__| |__| |__|
60.	How often do you practice active management of third stage of labour during normal vaginal childbirths?	1. Always (80-100%) 2. Mostly (50-80%) 3. About half (50 %) 4. Sometime (25-50%)	|__|

		5. Rarely (less than 25%)	
61.	Have you ever experienced bleeding after delivery?	1. Yes 2. No	|__|
62.	Have you ever given misoprostol to prevent postpartum haemorrhage?	1. Yes 2. No (skip Q66)	|__|
63.	When did you give misoprostol?	1. Immediately/ one minute after childbirth 2. With delivery of anterior shoulder 3. After the delivery of the placenta 4. Other (specify) _____	|__| |__| |__| |__|
64.	How many tablets of Misoprostol do you normally give?	----------tablets	|__|
65.	Where did you get the misoprostol from?	1. Self (bought it) 2. MW 3. Health department 4. INGO 5. Other (specify) _____	|__|
66.	Do you have a thermometer?	1. Yes 2. No (Skip to Q68)	|__|
67.	How do you check the temperature of a post-natal woman?	1. Always (80-100%) 2. Mostly (50-80%) 3. About half (50 %) 4. Sometime (25-50%) 5. Rarely (less than 25%)	|__|
68.	What services do you normally provide for immediate new born care? (no probe, listen and tick all that apply)	1. Wipe nose, mouth of newborn with a clean cloth or gauze 2. Cleaning mucous if necessary 3. Warming 4. Breast feeding at once (immediately) 5. Cleaning of the eyes 6. Cord care (checking for the umbilical stump) 7. Weighing the baby 8. Checking for anus/other missing body parts	|__| |__| |__| |__| |__| |__| |__| |__|

		9. Other (specify) _____	|__|
69.	Do you have a suction tube to resuscitate a new born?	1. Yes 2. No (Skip to Q71)	|__|
70.	Have you ever done resuscitation of a new born using the suction tube ?	1. Yes 2. No	|__|
71.	Within six months how many pregnant women have you referred during delivery	_____ number (if zero Skip to Q75)	|__|
72.	What is the most common reason for referral during delivery? (please specify, single response)	1. Prolong labour 2. No more labour pain after 6 hours of membrane rupture 3. Convulsion 4. Massive bleeding per vagina 5. Cord prolapsed 6. Retained placenta 7. Difficult breathing 8. Neonatal cause 9. Others (specify) _____	|__| |__| |__| |__| |__| |__| |__| |__| |__|
73.	Who do you normally refer to for delivery care?	1. Doctor 2. Health Assistant 3. Lady Health Visitor/Nurse 4. Midwife 5. Others (specify) _____	|__|
74.	Do you go along with the patient for referral to hospital	1. Yes 2. No	|__|
75.	Have you encountered any maternal deaths with in last 3 years	1. Yes 2. No (Skip to Q77)	|__|
76.	If yes, number of maternal deaths	_____number	|__|__|
77.	Within 6 months how many women have you assisted for postnatal care	_____number	|__|__|
78.	Where do you normally see the woman for post-natal care	1. Your home 2. Patient's home 3. Others (specify) _____	|__|
79.	How many average post-natal visits	_____number	|__|_

	do you perform for the first week after childbirth (14 days)		_|
80.	During your post-natal visits what do you normally do? (No probing just listen and tick to all that apply)	1. Checking the mother for signs of bleeding 2. Checking for fever 3. Examination of the new born for complications 4. Examination of the breast for distention 5. Counselling on nutrition 6. Counselling on contraception 7. Counselling on breast feeding 8. Checking for involution of uterus 9. Others (specify)	|__| |__| |__| |__| |__| |__| |__| |__| |__|
81.	How many visits do you normally go for post-natal care within 14 days	_____number	|__|
82.	Have you ever given any type of antibiotics to a post-partum woman who has fever?	1. Yes 2. No (Skip to Q84)	|__|
83.	If yes, please tell me which antibiotics did you give? (multiple response and tick to all that apply)	1. Ampicillin 2. Gentamycin 3. Septrin 4. Metronidazole 5. Others (specify)	|__| |__| |__| |__| |__|
84.	Have you ever given any injection to a pregnant/postpartum woman?	1. Yes 2. No (Skip to Q86)	|__|_ _|
85.	If yes, what injection did you give? (multiple response and tick to all that apply)	1. Vitamins (IM) 2. Vitamins (IV) 3. Drip line 4. Oxytocin/Syntocinon 5. Depo injection 6. ATT injection 7. Diclofenac injection	|__| |__| |__| |__| |__| |__| |__|

		8. Others (specify)	|__|
86.	Have you ever given contraceptives to women	1. Yes 2. No (Skip to Q88)	|__|
87.	What type of contraceptive did you give? (multiple response and tick to all that apply)	1. Oral 2. Injection 3. Condom 4. Others (specify)	|__| |__| |__| |__|
88.	How much on average do you earn for a delivery?	_____kyats If in kind please specify	|__|__|__|__|__| |__|
Section 5: Barriers and facilitators for provision of maternal and new born care services			
89.	Have you ever received an AMW kit?	1. Yes 2. No (Skip to Q91)	|__|
90.	If yes, when did you receive the AMW kit	_____exact year	
91.	Can you tell me what are the main instruments used during the time of delivery. (multiple response and tick to all that apply)	1. Forceps 2. Scissors 3. Clean delivery kit 4. Child weighing machine 5. Adult weighing machine 6. Thermometer 7. Soap 8. Medicines (F/S, B1, deworming tablets) 9. Blood pressure 10. Stethoscope 11. Betadine antiseptics 12. others	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|
92.	How do you refill the drugs in the kit	1. Self 2. Given by the health department 3. Given by NGOs 4. Not filled yet	|__|

93.	What are the main barriers in conducting maternal and new born care in the community (multiple response and tick to all that apply)	1. Lack of financial incentives 2. Transportation difficulties 3. Lack of medicines and supplies 4. Hard to persuade the patients for referral 5. Too close to the MW/RHC 6. Expected more by the community 7. Over workload and hard to cope with daily living 8. Little support from community 9. Had to participate in many other activities not related to health 10. Others (specify)	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__|
94.	What are the main improvements you would want to get in conducting maternal and new born care in the community (multiple response and tick to all that apply)	1. Getting an income from being an AMW/ Salary 2. Supplies and medicine supplementation 3. Receiving regular ongoing training 4. Understanding them as volunteers 5. Acknowledgement of their service from the government (incentive, promotion to government staff, certificate) 6. Transportation and communication support (phone, motor cycle) 7. Official permission to give injections and treatment 8. Others (specify)	|__| |__| |__| |__| |__| |__| |__| |__|
95.	Do you have to do other health related activities apart from maternal and child health	1. Yes 2. No (Skip to Q97)	|__|
96.	What are the activities? (multiple response and tick to all that apply)	1. Environmental sanitation 2. Helping referral for other health emergencies (snake bites, accidents) 3. Care of sick person (not MCH)	|__| |__| |__|

		4.	Health education	|__|
		5.	Prevention of communicable diseases	|__|
		6.	School health activities	|__|
		7.	Others (specify)	|__|
97.	Are you a health volunteer for other organization or activity?	1.	Yes	|__|
		2.	No (Finished and thank you)	
98.	If, yes please specify all the volunteer work that you do. (multiple response and tick to all that apply)	1.	PSI RH volunteer	|__|
		2.	SC MCH volunteer	|__|
		3.	Community health worker	|__|
		4.	MSI health worker	|__|
		5.	Malaria volunteer (SC, MMA, MHAA, Government, PSI)	|__|
		6.	TB volunteer	|__|
		7.	CCM volunteer	|__|
		8.	Others (specify)	|__|

မြန်မာနိုင်ငံ လူထုအခြေပြု မိခင်နှင့်ကလေး ကျန်းမာရေးစောင့်ရှောက်မှုလုပ်ငန်းများ ဆောင်ရွက်နေသည့် အရန်သားဖွားဆရာမများ၏ အခန်းကဏ္ဍမြှင့်တင်နိုင်ရေးဆိုင်ရာ ဆန်းစစ်မှုသုတေသန

အုပ်စုဖွဲ့ဆွေးနွေးခြင်း (အသက်၃၅နှစ်အောက်ကလေးရှိ မိခင်များ)

သင်၏ကိုယ်ရေးအချက်အလက်အနည်းငယ်အား မေးမြန်းမည်ဖြစ်ပါသည်။ ဤအချက်အလက်များသည် ကျေးရွာတွင်မိခင်နှင့်ကလေးကျန်းမာရေးစောင့်ရှောက်မှုလုပ်ငန်းများတွင်အရံသားဖွားဆရာမများ၏ အခန်းကဏ္ဍအပေါ် သုတေသနပြုလုပ်ရန်အတွက်အထောက်အကူပြုစေရန်ဖြစ်ပါသည်။
သင်မဖြေဆိုလိုသောမေးခွန်းများကို ဖြေဆိုရန်ငြင်းဆန်နိုင်ပါသည်။ သင်၏ကိုယ်ရေးအချက်အလက်များအား သုတေသနအတွက်သာ မေးမြန်းခြင်းဖြစ်ပြီး အခြားမည်သူ့ကိုမျှ ထုတ်ဖော်ပြောကြားခြင်းမပြုပါ။ ထို့ပြင် ကောက်ယူရရှိသောအချက်အလက်များကို လုံခြုံစွာသိမ်းဆည်းထားမည်ဖြစ်ပါသည်။

၁	အသက် (ပြည့်ပြီးအသက်)	
၂	အိမ်ထောင်ရေးအခြေအနေ (၁) အိမ်ထောင်ရှိ (၂) အိမ်ထောင်ကွဲ (၃) မုဆိုးမ	
၃	ပညာရေးအခြေအနေ (၁) မူလတန်း (သူငယ်တန်းမှ ၄တန်း (၂) အလယ်တန်း (၄တန်းအောင်မှ ၈တန်း) (၃) အထက်တန်း (၈တန်းအောင်မှ ၁၀တန်း) (၄) တက္ကသိုလ်ပညာရေး (၅) ဘွဲ့ရ	
၄	စုစုပေါင်းကလေး အရေအတွက် (သေဆုံးကလေးမပါ)	
၅	အငယ်ဆုံးကလေး အသက် (စုစုပေါင်းလ)	
၆	အငယ်ဆုံးကလေးမွေးဖွားရာနေရာ (၁) အိမ် (၂) ဆေးခန်း၊ဆေးရုံ (ပြင်ပ၊အစိုးရ) (၃) အခြား (ဖော်ပြပါ) ……..	
၇	အငယ်ဆုံးကလေးမွေးဖွားစဉ် အဓိကမွေးဖွားပေးသူ (၁) ဆရာဝန် (၂) ကျန်းမာရေးမှူး၊ အမျိုးသမီးကျန်းမာရေးဆရာမ (၃) သားဖွားဆရာမ (၄) အရန်သားဖွားဆရာမ (၅) အရပ်လက်သည် (၆) အခြား (ဖော်ပြပါ) ……..	
၈	အငယ်ဆုံးကလေးမွေးဖွားစဉ် နှင့် မီးတွင်းကာလများတွင် ဆေးဝါးများသုံးစွဲခဲ့ပါသလား။ ၁. အနောက်တိုင်း သောက်ဆေး (၁) သုံး (၀) မသုံး ၂. ဗမာတိုင်းရင်းဆေး သောက်ဆေး (၁) သုံး (၀) မသုံး ၃. ဗမာတိုင်းရင်းဆေး ရှုဆေး (၁) သုံး (၀) မသုံး ၄. ထိုးဆေး (၁) သုံး (၀) မသုံး ၅. အခြား (၁) သုံး (၀) မသုံး (ဖော်ပြပါ) ……..	
၉	အငယ်ဆုံးကလေးမွေးဖွားစဉ် အန္တရာယ် ရှိသည့် လက္ခဏာတစ်ခုခု ကြုံတွေ့ခဲ့ဖူးပါသလား	

APPENDIX (၁)	(၁) မကြုံတွေ့ခဲ့ပါ (၂) ကြုံတွေ့ခဲ့ပါသည် (ဖော်ပြပါ).....	
၁၀	သင်၏မိသားစု လစဉ်ပျမ်းမျှဝင်ငွေ (ကျပ်)	

၁. ကလေးမွေးဖွားခြင်းနှင့် ပတ်သက်သည့်လက်ရှိအလေ့အထ

ရွာမှာ အမျိုးသမီးအများစု ကလေးဘယ်လိုမွေးကြသလဲ

-ဘယ်သူနဲ့မွေးလဲ

-ဘယ်မှာမွေးလဲ

-အိမ်မှာ (သို့မဟုတ်)ဆေးရုံမှာ မွေးကြတာ ဘာကြောင့်လဲ

-ဘယ်သူက အဲ့လိုမွေးဖို့ အဓိကဆုံးဖြတ်တာ ဘယ်သူလဲ

၂. ကလေးမွေးဖွားချိန်နှင့် မီးတွင်းကာလ အသုံးပြုသည့်ဆေးဝါးများ

ကလေးမွေးဖွားချိန်နှင့် မီးတွင်းကာလတွေမှာ ဘာဆေးတွေသုံးကြသလဲ

-ဗိုက်နာချိန်၊ မွေးတဲ့အချိန်၊ မီးတွင်းမှာ ဘာဆေးတွေသုံးလဲ

-ဘာကြောင့်သုံးတာလဲ (မွေးရလွယ်အောင်လို့လား သွေးတိတ်အောင်လို့လား

-ဘာဆေးတွေလဲ (ဘယ်ကရလဲ/ဘယ်သူကပေးလဲ)

-ဘယ်လောက်ပေးဝယ်ရလဲ

-ဘယ်သူကသုံးဖို့ပြောတာလဲ

၃. ကျေးရွာရှိ ကျန်းမာရေးစောင့်ရှောက်သူနှင့် ၎င်းတို့၏လုပ်ဆောင်ချက်များ

ကျေးရွာမှာ မိခင်နှင့်ကလေး ကျန်းမာရေးကို စောင့်ရှောက်ပေးသူတွေ ဘယ်သူတွေရှိလဲ

-ဘယ်သူတွေလဲ

-သူတို့ကဘာတွေကွာကြလဲ (ကျွမ်းကျင်မှု၊ ပညာအရည်အချင်း၊ အတွေ့အကြုံ၊ အသက်အရွယ်)

-ကိုယ်ဝန်ဆောင်စဉ်၊ မွေးဖွားစဉ် နှင့် မီးတွင်းကာလတွေမှာ ဘာစောင့်ရှောက်မှုတွေရလဲ

-သူတို့ကတခြားကော ဘာတွေလုပ်ပေးလဲ (ကိုယ်ဝန်တားဆေး ပေးတာ/ကလေးကို ကာကွယ်ဆေးထိုးပေးတာ)

-အဲ့အပြင် တခြားတခြားကော ဘာတွေလုပ်သေးလဲ

(ကျန်းမာရေးဟောပြောပွဲ/ လူထုအစည်းအဝေး/ဆွေးနွေးအကြံပေးခြင်း)

-ရွာထဲမှာရှိတဲ့ မိခင်တွေက ဘယ်သူနဲ့ပြဖို့ ဘယ်လိုရွေးချယ်ကြလဲ (ရင်းနှီးခင်မင်မှု၊ ယုံကြည်မှု၊ စရိတ်စက)

-ဘယ်လိုဆုံးဖြတ်ကြလဲ (ရင်းနှီးခင်မင်မှု၊ ယုံကြည်မှု၊စရိတ်စက) အဲ့အချက်တွေထဲမှာ ဘာက အရေးကြီးဆုံးလဲ/တခြားဘယ်သူတွေဆီက အကြံတောင်းလဲ

၄. အရန်သားဖွားဆရာမများအပေါ် သဘောထားအမြင်

ရွာကအရန်သားဖွားဆရာမများအပေါ် ဘယ်လိုမြင်ပါသလဲ

-၎င်းတို့၏ကျွမ်းကျင်မှု

-စိတ်တိုင်းကျမှု

-သူတို့ရှိနေတဲ့အတွက် ရွာမှာ ဘာတွေပိုကောင်းလာသလဲ

-သူတို့ကို ဘာတွေပိုပြီးလုပ်ပေးစေချင်သလဲ

ရွာမှာအရန်သားဖွားဆရာမကို မသုံးဖြစ်ရတဲ့အကြောင်းရင်းများကကော

-အမြဲမရှိခြင်း

-ကုန်ကျစရိတ်

-ကျွမ်းကျင်မှု၊ ယုံကြည်မှု

၅. အရန်သားဖွားများအပေါ် မျှော်လင့်ချက်

အရန်သားဖွားဆရာမများဆီက ဘာမျှော်လင့်လဲ

-ရောဂါကာကွယ်ရေး (ကျန်းမာရေးပညာပေးခြင်း၊ နှစ်သိမ့်ဆွေးနွေးခြင်း)

-ဆေးကုသပေးခြင်း (သောက်ဆေးပေးခြင်း)

-လတ်တလောမလုပ်သော်လည်း သင်ဖြစ်စေချင်သော ကျန်းမာရေးစောင့်ရှောက်မှု

အရန်သားဖွားဆရာမများအပေါ် လူထု၏ သဘောထား

-ရွာမှာအရန်သားဖွားဆရာမ ရှိခြင်းရဲ့အကျိုးကျေးဇူး

-အရန်သားဖွားဆရာမ ရှိပြီးနောက် ပြောင်းလဲတိုးတက်လာမှု

၆. အရန်သားဖွားဆရာမများထပ်မံပြုလုပ်နိုင်ရန်ဖြစ်နိုင်ချေရှိသည့် ကျန်းမာရေးစောင့်ရှောက်မှုများအားဆွေးနွေးခြင်း

လူထုအနေနဲ့ အရန်သားဖွားဆရာမများသည် မွေးဖွားစဉ်နှင့် မီးတွင်းကာလတွင် သောက်ဆေးပေးမည် ဆိုပါက ဘယ်လိုသဘောရပါလဲ

-ဖြစ်နိုင်ပါသလား

-လူနာလက်ခံနိုင်မယ်ထင်ပါသလား

-အကျိုးရှိမလား၊ မရှိဘူးလား

လူထုအနေနဲ့အရန်သားဖွားဆရာမများသည် မွေးကင်းစကလေးအား လိုအပ်ပါက အသက်ရှူထောက်ပံ့မှု ဆိုင်ရာ ကိရိယာကိုသုံး၍အသက်ရှူမှုပုံမှန်ဖြစ်အောင်ပြုလုပ်ပေးခြင်းကိုဘယ်လိုသဘောရပါသလဲ

-ဖြစ်နိုင်ပါသလား

-လူနာလက်ခံနိုင်မယ်ထင်ပါသလား

-အကျိုးရှိမလား၊ မရှိဘူးလား

တခြားအရန်သားဖွားဆရာမများနှင့် ပတ်သက်သည့် အကြံဉာဏ်များရှိပါက ပြောပြပေးပါရန် မေတ္တာရပ်ခံပါသည်။

သင်၏ကိုယ်ရေးအချက်အလက်အနည်းငယ်အား မေးမြန်းမည်ဖြစ်ပါသည်။ ဤအချက်အလက်များသည် ကျေးရွာတွင်မိခင်နှင့်ကလေးကျန်းမာရေးစောင့်ရှောက်မှုလုပ်ငန်းများတွင်အရံသားဖွားဆရာမများ၏ အခန်းကဏ္ဍအပေါ် သုတေသနပြုလုပ်ရန်အတွက်အထောက်အကူပြုစေရန်ဖြစ်ပါသည်။
သင်မဖြေဆိုလိုသောမေးခွန်းများကို ဖြေဆိုရန်ငြင်းဆန်နိုင်ပါသည်။ သင်၏ကိုယ်ရေးအချက်အလက်များအား သုတေသနအတွက်သာ မေးမြန်းခြင်းဖြစ်ပြီး အခြားမည်သူ့ကိုမျှ ထုတ်ဖော်ပြောကြားခြင်းမပြုပါ။ ထို့ပြင် ကောက်ယူရရှိသောအချက်အလက်များကို လုံခြုံစွာသိမ်းဆည်းထားမည်ဖြစ်ပါသည်။

၁	အသက် (ပြည့်ပြီးအသက်)	
၂	ကျား၊မ ကျား (၁) မ (၂)	
၃	အိမ်ထောင်ရေးအခြေအနေ (၁) အပျို၊လူပျို (၂) အိမ်ထောင်ရှိ (၃) အိမ်ထောင်ကွဲ (၄) မုဆိုးမ	
၄	အငယ်ဆုံးကလေး အသက် (စုစုပေါင်းလ)	
၅	ပညာရေးအခြေအနေ (၁) မူလတန်း (သူငယ်တန်းမှ ၄တန်း (၂) အလယ်တန်း (၄တန်းအောင်မှ ၈တန်း) (၃) အထက်တန်း (၈တန်းအောင်မှ ၁၀တန်း) (၄) တက္ကသိုလ်ပညာရေး (၅) ဘွဲ့ရ	
၆	အလုပ်အကိုင် (၁) မိုခိုး၊ အငြိမ်းစား (၂) လက်လုပ် လက်စား (၃) လယ်သမား (၄) ကိုယ်ပိုင်လုပ်ငန်း (အသေးစား) (၅) ကိုယ်ပိုင်လုပ်ငန်း (အကြီးစား) (၆) အစိုးရဝန်ထမ်း (၇) အခြား (ဖော်ပြပါ)	
၇	စုစုပေါင်းကလေး အရေအတွက် (သေဆုံးကလေးမပါ)	
၈	သင်၏မိသားစု လစဉ်ပျမ်းမျှဝင်ငွေ (ကျပ်)	

အုပ်စုဖွဲ့ဆွေးနွေးခြင်း (ရပ်ရွာလူထု)

၁. ကလေးမွေးဖွားခြင်းနှင့် ပတ်သက်သည့်လက်ရှိအလေ့အထ

ရွာမှာ အမျိုးသမီးအများစု ကလေးဘယ်လိုမွေးကြသလဲ

-ဘယ်သူနဲ့မွေးလဲ

-ဘယ်မှာမွေးလဲ

-အိမ်မှာ (သို့မဟုတ်)ဆေးရုံမှာ မွေးကြတာ ဘာကြောင့်လဲ

-ဘယ်သူက အဲ့လိုမွေးဖို့ အဓိကဆုံးဖြတ်တာ ဘယ်သူလဲ

၂. ကလေးမွေးဖွားချိန်နှင့် မီးတွင်းကာလ အသုံးပြုသည့်ဆေးဝါးများ

ကလေးမွေးဖွားချိန်နှင့် မီးတွင်းကာလတွေမှာ ဘာဆေးတွေသုံးကြသလဲ

-ဗိုက်နာချိန်၊ မွေးတဲ့အချိန်၊ မီးတွင်းမှာ ဘာဆေးတွေသုံးလဲ

-ဘာကြောင့်သုံးတာလဲ(မွေးရလွယ်အောင်လို့လား/သွေးတိတ်အောင်လို့လား)

-ဘာဆေးတွေလဲ/ဘယ်ကရလဲ/ဘယ်သူကပေးလဲ

-ဘယ်လောက်ပေးဝယ်ရလဲ/ဘယ်သူကသုံးဖို့ပြောတာလဲ

၃. ကျေးရွာရှိ ကျန်းမာရေးစောင့်ရှောက်သူနှင့် ၎င်းတို့၏လုပ်ဆောင်ချက်များ

ကျေးရွာမှာ မိခင်နှင့်ကလေး ကျန်းမာရေးကို စောင့်ရှောက်ပေးသူတွေ ဘယ်သူတွေရှိလဲ

-ဘယ်သူတွေလဲ

-သူတို့ကဘာတွေကွာကြလဲ

(ကျွမ်းကျင်မှု၊ ပညာအရည်အချင်း၊ အတွေ့အကြုံ၊ အသက်အရွယ်)

-ကိုယ်ဝန်ဆောင်စဉ်၊ မွေးဖွားစဉ် နှင့် မီးတွင်းကာလတွေမှာ ဘာစောင့်ရှောက်မှုတွေရလဲ

-သူတို့ကတခြားကောဘာတွေလုပ်ပေးလဲ

(ကိုယ်ဝန်တားဆေးပေးတာ/ကလေးကိုကာကွယ်ဆေးထိုးပေးတာ)

-အဲ့အပြင်တခြားတခြားကောဘာတွေလုပ်သေးလဲ

(ကျန်းမာရေးဟောပြောပွဲ/လူထုအစည်းအဝေး/ဆွေးနွေးအကြံပေးခြင်း)

-ရွာထဲမှာရှိတဲ့ မိခင်တွေက ဘယ်သူနဲ့ပြဖို့ ဘယ်လိုရွေးချယ်ကြလဲ (ရင်းနှီးခင်မင်မှု၊ ယုံကြည်မှု၊စရိတ်စက) ဘယ်လိုဆုံးဖြတ်ကြလဲ (ဘာကို အခြေခံပြီး ရွေးချယ်ကြလဲ (ရင်းနှီးခင်မင်မှု၊ ယုံကြည်မှု၊စရိတ်စက)အဲ့အချက်တွေထဲမှာဘာကအရေးကြီးဆုံးလဲ

တခြားဘယ်သူတွေဆီကအကြံတောင်းလဲ

၄. အရန်သားဖွားဆရာမများအပေါ် သဘောထားအမြင်

ရွာကအရန်သားဖွားဆရာမများအပေါ် ဘယ်လိုမြင်ပါသလဲ

-၎င်းတို့၏ကျွမ်းကျင်မှု

-စိတ်တိုင်းကျမှု

-သူတို့ရှိနေတဲ့အတွက် ရွာမှာ ဘာတွေပိုကောင်းလာသလဲ

-သူတို့ကို ဘာတွေပိုပြီးလုပ်ပေးစေချင်သလဲ

ရွာမှာအရန်သားဖွားဆရာမကို မသုံးဖြစ်ရတဲ့အကြောင်းရင်းများကကော

-အမြဲမရှိခြင်း

-ကုန်ကျစရိတ်

-ကျွမ်းကျင်မှု၊ ယုံကြည်မှု

၅. အရန်သားဖွားများအပေါ် မျှော်လင့်ချက်

အရန်သားဖွားဆရာမများဆီက ဘာမျှော်လင့်လဲ

-ရောဂါကာကွယ်ရေး (ကျန်းမာရေးပညာပေးခြင်း၊ နှစ်သိမ့်ဆွေးနွေးခြင်း)

-ဆေးကုသပေးခြင်း (သောက်ဆေးပေးခြင်း)

-လတ်တလောမလုပ်သော်လည်း သင်ဖြစ်စေချင်သော ကျန်းမာရေးစောင့်ရှောက်မှု

အရန်သားဖွားဆရာမများအပေါ် လူထု၏ သဘောထား

-ရွာမှာအရန်သားဖွားဆရာမ ရှိခြင်းရဲ့အကျိုးကျေးဇူး

-အရန်သားဖွားဆရာမ ရှိပြီးနောက်ပြောင်းလဲတိုးတက်လာမှု

၆. အရန်သားဖွားဆရာမများထပ်မံပြုလုပ်နိုင်ရန်ဖြစ်နိုင်ချေရှိသည့် ကျန်းမာရေးစောင့်ရှောက်မှုများအားဆွေးနွေးခြင်း

လူထုအနေနဲ့ အရန်သားဖွားဆရာမများသည် မွေးဖွားစဉ်နှင့် မီးတွင်းကာလတွင် သောက်ဆေးပေးမည် ဆိုပါက ဘယ်လိုသဘောရပါလဲ

-ဖြစ်နိုင်ပါသလား

-လူနာလက်ခံနိုင်မယ်ထင်ပါသလား

-အကျိုးရှိမလား၊ မရှိဘူးလား

လူထုအနေနဲ့ အရန်သားဖွားဆရာမများသည် မွေးကင်းစကလေးအား လိုအပ်ပါက အသက်ရှူထောက်ပံ့မှု ဆိုင်ရာ ကိရိယာကိုသုံး၍အသက်ရှူမှုပုံမှန်ဖြစ်အောင်ပြုလုပ်ပေးခြင်းကိုဘယ်လိုသဘောရပါသလဲ

--ဖြစ်နိုင်ပါသလား

-လူနာလက်ခံနိုင်မယ်ထင်ပါသလား

-အကျိုးရှိမလား၊ မရှိဘူးလား

တခြားအရန်သားဖွားဆရာမများနှင့်ပတ်သက်သည့်အကြံဉာဏ်များရှိပါက ပြောပြပေးပါရန်မေတ္တာရပ်ခံပါသည်။

သင်၏ကိုယ်ရေးအချက်အလက်အနည်းငယ်အား မေးမြန်းမည်ဖြစ်ပါသည်။ ဤအချက်အလက်များသည် ကျေးရွာတွင်မိခင်နှင့်ကလေးကျန်းမာရေးစောင့်ရှောက်မှုလုပ်ငန်းများတွင်အရံသားဖွားဆရာမများ၏ အခန်းကဏ္ဍအပေါ် သုတေသနပြုလုပ်ရန်အတွက်အထောက်အကူပြုစေရန်ဖြစ်ပါသည်။
သင်မဖြေဆိုလိုသောမေးခွန်းများကို ဖြေဆိုရန်ငြင်းဆန်နိုင်ပါသည်။ သင်၏ကိုယ်ရေးအချက်အလက်များအား သုတေသနအတွက်သာ မေးမြန်းခြင်းဖြစ်ပြီး အခြားမည်သူ့ကိုမျှ ထုတ်ဖော်ပြောကြားခြင်းမပြုပါ။ ထို့ပြင် ကောက်ယူရရှိသောအချက်အလက်များကို လုံခြုံစွာသိမ်းဆည်းထားမည်ဖြစ်ပါသည်။

၁	အသက် (ပြည့်ပြီးအသက်)	
၂	အိမ်ထောင်ရေးအခြေအနေ (၁) အပျို၊လူပျို (၂) အိမ်ထောင်ရှိ (၃) အိမ်ထောင်ကွဲ (၄) မုဆိုးမ	
၃	ပညာရေးအခြေအနေ (၁) မူလတန်း (သူငယ်တန်းမှ ၄တန်း (၂) အလယ်တန်း (၄တန်းအောင်မှ ၈တန်း) (၃) အထက်တန်း (၈တန်းအောင်မှ ၁၀တန်း) (၄) တက္ကသိုလ်ပညာရေး (၅) ဘွဲ့ရ	
၄	အရံသားဖွားဆရာမအဖြစ် လုပ်ကိုင်ခဲ့သည့် နှစ်ပေါင်း (နှစ်)	
၅	တစ်နှစ်အတွင်း ပျမ်းမျှမွေးဖွားပေးခဲ့သည့် မိခင်ပေါင်း (မိခင်အယောက်ပေါင်း)	
၆	အရံသားဖွားသင်တန်းတက်ရောက်ခဲ့သည့် ခုနှစ်	
၇	အရံသားဖွား သင်တန်းကာလ .....ရက်..... လ..... နှစ်	
၈	နောက်ဆုံးရရှိခဲ့သည့် မိခင်နှင့်ကလေးကျန်းမာရေးသင်တန်း၏ ခုနှစ်	
၉	အလုပ်အကိုင် (၁) မှီခို၊ အငြိမ်းစား (၂) လက်လုပ် လက်စား (၃) လယ်သမား (၄) ကိုယ်ပိုင်လုပ်ငန်း (အသေးစား) (၅) ကိုယ်ပိုင်လုပ်ငန်း (အကြီးစား) (၆) အစိုးရဝန်ထမ်း (၇) အရံသားဖွားဆရာမလုပ်ငန်းမှလွဲ၍ အခြားအလုပ်မလုပ်ပါ။ (၈) အခြား (ဖော်ပြပါ)	
၁၀	မိခင်များအား ကလေးမွေးဖွားပေးစဉ် နှင့် မီးတွင်းကာလများတွင် ဆေးဝါးများအသုံးပြုလေ့ရှိပါသလား။ ၁. အနောက်တိုင်း သောက်ဆေး (၁) သုံး (၀) မသုံး ၂. ဗမာတိုင်းရင်းဆေး သောက်ဆေး (၁) သုံး (၀) မသုံး ၃. ဗမာတိုင်းရင်းဆေး ရှူဆေး (၁) သုံး (၀) မသုံး ၄. ထိုးဆေး (၁) သုံး (၀) မသုံး ၅. အခြား (၁) သုံး (၀) မသုံး (ဖော်ပြပါ)	

၁. ကလေးမွေးဖွားခြင်းနှင့်ပတ်သက်သည့် လက်ရှိအလေ့အထ

ရွာမှာ မိခင်တွေကို ကလေးမွေးစဉ်အချိန်နဲ့ မီးတွင်းကာလတွေမှာ ဘာတွေပြုလုပ်ပေးလဲဆိုတာပြောပြပေးပါ။

-မီးဖွားစဉ်ဘာလုပ်ပေးလဲ/မွေးပြီးမီးတွင်းကာလတွေမှာ သင်ဘာလုပ်ပေးလဲ

-သင့်အပြင်တခြားလူတွေကကော ပါသလား/ဘယ်သူတွေလဲ (မိသားစုဝင်၊ အရန်သားဖွားဆရာမ)/သူတို့ကကောဘာလုပ်ပေးလဲ

-ဘာအခက်အခဲတွေကြုံဖူးလဲပြောပြပါ

-ဘယ်လိုကျော်လွှားခဲ့လဲ

-ဘယ်လိုအခြေအနေမျိုးမှာ ဆေးရုံ၊ဆေးခန်းတွေကို (လွှဲခဲ့ရလဲ/ဘယ်လိုလွှဲလဲ/ဘယ်သူတွေက ကူညီကြလဲ/ဘယ်ကိုလွှဲလဲ)

၂. ကလေးမွေးဖွားစဉ်နှင့် မီးတွင်းကာလတွင် အသုံးပြုသည့်ဆေးဝါးများ

ကလေးမွေးဖွားစဉ်နှင့် မီးတွင်းကာလတွေမှာ ဘာဆေးတွေသုံးလေ့ရှိလဲ

-ကလေးမွေးရလွယ်အောင်သုံးတဲ့ဆေးတွေရှိလား ဘယ်လိုဆေးမျိုးလဲ(သောက်ဆေး/ထိုးဆေး/ဗမာဆေး/အင်္ဂလိပ်ဆေး)

-သွေးမသွန်အောင်ရောကြိုတင်ကာကွယ်တဲ့ဆေးမျိုးတွေပေးလား (သောက်ဆေး/ထိုးဆေး/ရှူဆေး/ဗမာဆေး/အင်္ဂလိပ်ဆေး)

-ရွာက အမျိုးသမီးတွေကော ဆေးဝါးသုံးစွဲရတာကြိုက်လား (သောက်ဆေးပေးဖို့၊ဆေးထိုးပေးဖို့တောင်းဆိုကြလား/ဘာကြောင့်လဲ)

-အများဆုံးသုံးဖြစ်တာဘာဆေးတွေလဲ (ဒီဆေးတွေဘယ်ကရပါသလဲ/ကုန်ကျစရိတ်ကောဘယ်လိုပြန်ရပါသလဲ)

၃. ကျေးရွာရှိကျန်းမာရေးစောင့်ရှောက်သူနှင့် ၎င်းတို့၏လုပ်ဆောင်မှုများ

ကျေးရွာမှာ မိခင်နှင့်ကလေးကျန်းမာရေးစောင့်ရှောက်ပေးသူတွေဘယ်သူတွေရှိလဲ

-ဥပမာ(ကျန်းမာရေးမှူး၊ သားဖွားဆရာမ၊ အရပ်လက်သည်/တခြားဘယ်သူတွေရှိသေးလဲ

-သူတို့တွေဘာတွေကွာကြသလဲ/ကျွမ်းကျင်မှု၊အတွေ့အကြုံ၊အသက်အရွယ်

-သူတို့တွေပေးတဲ့ ကျန်းမာရေးစောင့်ရှောက်မှုတွေမှာ/ဘာတွေတူတာရှိလဲ/ဘာတွေမတူတာရှိလဲ/ဘာကြောင့်လဲ

အရန်သားဖွားဆရာမတစ်ဦးအနေနဲ့ ရွာမှာရှိတဲ့ အခြားကျန်းမာရေးစောင့်ရှောက်ပေးသူတွေနဲ့အလုပ်လုပ်ရတာ ဘယ်လိုနေလဲ

-တူတူတွဲပြီး လုပ်ဆောင်တာမျိုးရှိလား

-တစ်ယောက်နဲ့တစ်ယောက် ကူညီတာမျိုးရှိလား

-အစဉ်မပြေတာကောရှိလား

-ဘယ်သူတွေနဲ့ တွဲလုပ်ရတာအဆင်ပြေပြီး/ဘယ်သူတွေနဲ့အဆင်မပြေဘူးလဲ

-ဘယ်လိုအခက်အခဲတွေရှိလဲ

-ရွာမှာရှိတဲ့ ဘယ်လိုအမျိုးသမီးတွေက အမ၊ညီမ တို့နဲ့မွေးလေ့ရှိကြလဲ/ဘာကြောင့်လဲ

၄. အရန်သားဖွားဆရာမတစ်ဦးအနေနှင့်ကြုံတွေ့ရသည့် အခက်အခဲ အဟန့်အတားများ

အရန်သားဖွားဆရာမတစ်ဦးအနေနှင့် အလုပ်လုပ်ရာမှာ ကြုံတွေ့ရသည့် အခက်အခဲ အဟန့်အတားများကို ပြောပြပါ

-အဓိက ဘယ်လိုအခက်အခဲမျိုး(ဘယ်သူတွေနဲ့/ကျေးရွာလူထု/မိခင်)

-ကိုယ့်အလုပ်ကို အကောင်းဆုံးလုပ်နိုင်ဖို့ ဘယ်လိုအထောက်အပံ့မျိုးတွေလိုလဲ

-ကိုယ်တတ်ကျွမ်းတဲ့ပညာနဲ့ လုပ်နိုင်တာကွာခြားမှုရှိလား

-သင်တန်းတုန်းက သင်တာနဲ့ လက်တွေ့မှာဘာတွေကွာခြားမှုရှိလဲ

-ဘာတွေပိုသိဖို့ ထပ်သင်ဖို့လိုလဲ

-ကျေးရွာ ကျန်းမာရေးစောင့်ရှောက်မှုပေးတဲ့အခါမှာ ဘာတွေလိုအပ်နေတယ်ထင်လဲ
(ဆေးဝါး/ပညာပိုင်းဆိုင်ရာ/လူထုအကူအညီ)

မီးဖွားစဉ်နှင့် မီးတွင်းကာလတွေမှာ အရည်အသွေးပြည့်ဝစွာ
ကျန်းမာရေးစောင့်ရှောက်မှုပေးနိုင်ဖို့တွေ့ကြုံရတဲ့ အခက်အခဲအဟန့်အတားများ

-လူထုကကိုယ့်ကို အရန်သားဖွားဆရာမတစ်ဦးအနေနဲ့ ဘာတွေမျှော်လင့်ထားလဲ
-ကိုယ်က ဘာတွေလုပ်ပေးနိုင်ပြီး/ဘာတွေမလုပ်ပေးနိုင်ဘူးလဲ/ဘာကြောင့်လဲ
-လူထုရဲ့အကူအညီ၊ အထောက်အပံ့ကောရလား/ဘာကြောင့်လဲ
-လူထုအတွက်ကျန်းမာရေးလုပ်ငန်းတွေလုပ်ဆောင်ရာမှာ ကြုံတွေ့ရတဲ့အခက်အခဲတွေကိုပြောပြပါ

သင့်အနေနဲ့ ဒီထက်ပိုပြီး အထောက်အပံ့တွေလိုတယ်ထင်လား

-ဘယ်လိုအထောက်အပံ့မျိုးလဲ(ငွေကြေး/စိတ်ဓာတ်ရေးရာ/ကြီးကြပ်လမ်းညွှန်ခြင်း/ဆေးဝါး)
-ဘယ်သူတွေဆီက ရနိုင်လဲ/လူထု/ကျန်းမာရေးဝန်ထမ်း/သားဖွားဆရာမ/မြို့နယ်ဆရာဝန်)
-ဘာတွေလိုချင်တာလဲ(ကျွမ်းကျင်မှုသင်တန်း/ဆေးဝါး)

၅. လုပ်ငန်းတာဝန်ပေးခြင်းဆိုင်ရာ ဖြစ်နိုင်ခြေရှိ၊ မရှိ

အရန်သားဖွားဆရာမတစ်ဦးအနေနှင့် အခုမေးတဲ့ လုပ်ငန်းတာဝန်တွေကို လုပ်နိုင်၊မလုပ်နိုင်၊ ဖြစ်နိုင်၊ မဖြစ်နိုင်မေးမြန်းခြင်းဖြစ်ပါတယ်။

-မီးတွင်းကာလမှာ သွေးသွန်ခြင်းကို ကြုံတွေ့လာခဲ့လျှင် ဘာလုပ်သင့်သလဲ
-အခဲ့လိုမျိုးမဖြစ်အောင် ဘယ်လိုကာကွယ်လို့ရလဲဘာတွေလိုအပ်မယ်ထင်လဲ
-ကိုယ်ဝန်ဆောင်မိခင်တွေကို ဆေးတိုက်လေ့ရှိလား(ဘာဆေးတွေတိုက်လဲ/အားဆေးလား)
-အကယ်၍ကိုယ်ဝန်ဆောင်မိခင်ကို သောက်ဆေးတစ်မျိုးတာဝန်ယူပြီး တိုက်ရမယ်ဆိုလျှင်ဖြစ်နိုင်ပါသလား
-အခဲ့လိုတိုက်ကျွေးဖို့ဘာတွေလိုမယ်ထင်လဲ
-Misoprostol ဆိုတဲ့ဆေးကိုကြားဖူးပါသလား
(ကြားဖူးရင်ဘယ်နေရာမှာ ဘာအတွက်ပေးတာလဲ/ဘယ်သူတွေကိုတိုက်လဲ/ဘယ်လိုတိုက်လဲ)
-အကယ်၍မီးတွင်းကာလမှာသွေးသွန်တာကို ကာကွယ်ဖို့ အခဲ့ဒီဆေးကို တာဝန်ယူပြီးတိုက်ရမယ်ဆိုရင် ဖြစ်နိုင်ပါသလား/ဘာတွေလိုအပ်မယ်ထင်လဲ
-အကယ်၍မီးတွင်းကာလမှာသွေးသွန်တာကို ကုသဖို့ အခဲ့ဒီဆေးကို တာဝန်ယူပြီးတိုက်ရမယ်ဆိုရင် ဖြစ်နိုင်ပါသလား/ဘာတွေလိုအပ်မယ်ထင်လဲ
-မီးတွင်းကာလမှာ အဖျားတက်တဲ့မိခင်တွေကြုံဖူးလား/
သူတို့ကိုဘယ်လိုစောင့်ရှောက်မှုပေးလဲ/သောက်ဆေးပေးဖူးလား/ဘယ်လိုစောင့်ရှောက်မှုပေးရတယ်လို့ကြားဖူးလဲ
-မီးတွင်းကာလမှာ အဖျားတက်တဲ့မိခင်တွေကို ပဋိဇီဝဆေးတစ်မျိုးကို တာဝန်ယူပြီးတိုက်ကျွေးရမယ်ဆိုရင် ဖြစ်နိုင်မလား/ဘာအခက်အခဲရှိနိုင်မလဲ
-နောက်ပြီး မွေးကင်းစကလေးတွေမှာရော အသက်ပုံမှန်မရှူတဲ့ ကလေးမျိုးကို ဘယ်လို အသက်ကယ်ပြုစုခဲ့ဖူးလဲ.....ဘာလုပ်ရမယ်လို့ကြားဖူးလဲ
-တကယ်လို့များ သင့်ကို အသက်ရှူကိရိယာ အိပ်နဲ့နှာခေါင်းခွက်ကို သုံးပြီး အခဲ့ကလေးမျိုးကို အသက်ကယ်ပြုစု စောင့်ရှောက်ခိုင်းမယ်ဆိုရင် ဖြစ်နိုင်မလား/ဘာအခက်အခဲကြုံနိုင်မလဲ

သင်၏ကိုယ်ရေးအချက်အလက်အနည်းငယ်အား မေးမြန်းမည်ဖြစ်ပါသည်။ ဤအချက်အလက်များသည် ကျေးရွာတွင်မိခင်နှင့်ကလေးကျန်းမာရေးစောင့်ရှောက်မှုလုပ်ငန်းများတွင်အရံသားဖွားဆရာမများ၏ အခန်းကဏ္ဍအပေါ် သုတေသနပြုလုပ်ရန်အတွက်အထောက်အကူပြုစေရန်ဖြစ်ပါသည်။
သင်မဖြေဆိုလိုသောမေးခွန်းများကို ဖြေဆိုရန်ငြင်းဆန်နိုင်ပါသည်။ သင်၏ကိုယ်ရေးအချက်အလက်များအား သုတေသနအတွက်သာ မေးမြန်းခြင်းဖြစ်ပြီး အခြားမည်သူ့ကိုမျှ ထုတ်ဖော်ပြောကြားခြင်းမပြုပါ။ ထို့ပြင် ကောက်ယူရရှိသောအချက်အလက်များကို လုံခြုံစွာသိမ်းဆည်းထားမည်ဖြစ်ပါသည်။

၁	အသက် (ပြည့်ပြီးအသက်)	
၂	အိမ်ထောင်ရေးအခြေအနေ (၁) အပျို/လူပျို (၂) အိမ်ထောင်ရှိ (၃) အိမ်ထောင်ကွဲ (၄) မုဆိုးမ	
၃	ပညာရေးအခြေအနေ (၁) မူလတန်း (သူငယ်တန်းမှ ၄တန်း) (၂) အလယ်တန်း (၄တန်းအောင်မှ ၈တန်း) (၃) အထက်တန်း (၈တန်းအောင်မှ ၁၀တန်း) (၄) တက္ကသိုလ်ပညာရေး (၅) ဘွဲ့ရ	
၄	သားဖွားဆရာမအဖြစ် စတင်လုပ်ကိုင်ခဲ့သည့် ခုနှစ် (ခုနှစ်အတိအကျ)	
၅	ဤမြို့နယ်တွင် သားဖွားဆရာမအဖြစ် တာဝန်ထမ်းဆောင်ခဲ့သည့် နှစ်ပေါင်း (နှစ်အရေအတွက်)	
၆	တစ်နှစ်အတွင်း ပျမ်းမျှမွေးဖွားပေးခဲ့သည့် မိခင်ပေါင်း (မိခင်အယောက်ပေါင်း)	
၇	အရံသားဖွားဆရာမများအား ကြီးကြပ်သူအဖြစ် ဆောင်ရွက်ပေးသည့် နှစ်ပေါင်း (နှစ်အရေအတွက်)	
၈	မိခင်များအား ကလေးမွေးဖွားပေးစဉ် နှင့် မီးတွင်းကာလများတွင် ဆေးဝါးများအသုံးပြုလေ့ရှိပါသလား။ ၁. အနောက်တိုင်း သောက်ဆေး (၁) သုံး (၀) မသုံး ၂. ဗမာတိုင်းရင်းဆေး သောက်ဆေး (၁) သုံး (၀) မသုံး ၃. ဗမာတိုင်းရင်းဆေး ရွာဆေး (၁) သုံး (၀) မသုံး ၄. ထိုးဆေး (၁) သုံး (၀) မသုံး ၅. အခြား (၁) သုံး (၀) မသုံး (ဖော်ပြပါ) ……..	

အုပ်စုဖွဲ့ဆွေးနွေးခြင်း (သားဖွားဆရာမ)

၁. ကလေးမွေးဖွားခြင်းနှင့်ပတ်သက်သည့် လက်ရှိအလေ့အထ

ရွာမှာ မိခင်တွေကို ကလေးမွေးစဉ်အချိန်နဲ့ မီးတွင်းကာလတွေမှာ ဘာတွေပြုလုပ်ပေးလဲဆိုတာပြောပြပေးပါ။

-မီးဖွားစဉ်ဘာလုပ်ပေးလဲ(မွေးပြီးမီးတွင်းကာလတွေမှာ သင်ဘာလုပ်ပေးလဲ)

-သင့်အပြင်တခြားလူတွေကကော ပါသလား/ဘယ်သူတွေလဲ (မိသားစုဝင်၊ အရန်သားဖွားဆရာမ)သူတို့ကကောဘာလုပ်ပေးလဲ

-ဘာအခက်အခဲတွေကြုံဖူးလဲပြောပြပါ

-ဘယ်လိုကျော်လွှားခဲ့လဲ

-ဘယ်လိုအခြေအနေမျိုးမှာ ဆေးရုံ၊ဆေးခန်းတွေကိုလွှဲခဲ့ရလဲဘယ်လိုလွှဲလဲ (ဘယ်သူတွေက ကူညီကြလဲ/ဘယ်ကိုလွှဲလဲ)

၂. ကလေးမွေးဖွားစဉ်နှင့် မီးတွင်းကာလတွင် အသုံးပြုသည့်ဆေးဝါးများ

ကလေးမွေးဖွားစဉ်နှင့် မီးတွင်းကာလတွေမှာ ဘာဆေးတွေသုံးလေ့ရှိလဲ

-ကလေးမွေးရလွယ်အောင်သုံးတဲ့ဆေးတွေရှိလား (ဘယ်လိုဆေးမျိုးလဲ/သောက်ဆေး/ထိုးဆေး/ဗမာဆေး/အင်္ဂလိပ်ဆေး)

-သွေးမသွန်အောင်ရောကြိုတင်ကာကွယ်တဲ့ဆေးမျိုးတွေပေးလား (သောက်ဆေး/ထိုးဆေး/ရှူဆေး/ဗမာဆေး/အင်္ဂလိပ်ဆေး)

-ရွာက အမျိုးသမီးတွေကော ဆေးဝါးသုံးစွဲရတာ ကြိုက်လား (သောက်ဆေးပေးဖို့၊ဆေးထိုးပေးဖို့တောင်းဆိုကြလား/ဘာကြောင့်လဲ)

-အများဆုံးသုံးဖြစ်တာဘာဆေးတွေလဲ (ဒီဆေးတွေဘယ်ကရပါသလဲ/ကုန်ကျစရိတ်ကောဘယ်လိုပြန်ရပါသလဲ)

၃. ကျေးရွာရှိကျန်းမာရေးစောင့်ရှောက်သူနှင့် ၎င်းတို့၏လုပ်ဆောင်မှုများ

ကျေးရွာမှာ မိခင်နှင့်ကလေးကျန်းမာရေးစောင့်ရှောက်ပေးသူတွေဘယ်သူတွေရှိလဲ

-ဥပမာ (ကျန်းမာရေးမှူး၊အရန်သားဖွား၊အရပ်လက်သည်/တခြားဘယ်သူတွေရှိသေးလဲ)

-သူတို့တွေဘာတွေကွာကြသလဲ(ကျွမ်းကျင်မှု၊အတွေ့အကြုံ၊အသက်အရွယ်)

-သူတို့တွေပေးတဲ့ ကျန်းမာရေးစောင့်ရှောက်မှုတွေမှာ (ဘာတွေတူတာရှိလဲ/ဘာတွေမတူတာရှိလဲ/ဘာကြောင့်လဲ)

သားဖွားဆရာမတစ်ဦးအနေနဲ့ ရွာမှာရှိတဲ့ အခြားကျန်းမာရေးစောင့်ရှောက်ပေးသူတွေနဲ့အလုပ်လုပ်ရတာ ဘယ်လိုနေလဲ

-တူတူတွဲပြီး လုပ်ဆောင်တာမျိုးရှိလား

-တစ်ယောက်နဲ့တစ်ယောက် ကူညီတာမျိုးရှိလား

-အစည်းပြေတာကောရှိလား

-ဘယ်သူတွေနဲ့ တွဲလုပ်ရတာအဆင်ပြေပြီး/ဘယ်သူတွေနဲ့အဆင်မပြေဘူးလဲ

-ဘယ်လိုအခက်အခဲတွေရှိလဲ

-ရွာမှာရှိတဲ့ ဘယ်လိုအမျိုးသမီးတွေက အမ၊ညီမ တို့နဲ့မွေးလေ့ရှိကြလဲ/ဘာကြောင့်လဲ

၄. အရန်သားဖွားဆရာမများ အပေါ် သဘောထားအမြင်

အရန်သားဖွားဆရာမများအပေါ် ဆရာမတို့ရဲ့ သဘောထားအမြင်များကို ပြောပြပါ။

-အရန်သားဖွားဆရာမ ရှိခြင်းက ကျေးရွာကျန်းမာရေးစောင့်ရှောက်မှုမှာ အထောက်အကူဖြစ်တယ်လို့ထင်ပါသလား

-သူတို့ရှိလို့ကျေးရွာမှာ ဘာတွေသိသိသာသာ တိုးတက်ပြောင်းလဲသွားလဲ

-ကျွမ်းကျင်မှု နဲ့ လုပ်ဆောင်မှု

-သူတို့ကိုဘာတွေလုပ်ဖို့မျှော်လင့်လဲ

-ကိုယ်မျှော်လင့်တဲ့အတိုင်းလုပ်နိုင်ကြလား/မလုပ်နိုင်တာတွေဘာတွေရှိလဲ/ဘာကြောင့်လဲ

-သူတို့လုပ်တာတွေကိုရော ကျနပ်မှုရှိပါလား/ဘာတွေလိုအပ်သေးလဲ
-သူတို့လက်ရှိလုပ်နေတာတွေထက် ဘာတွေပိုပြီး လုပ်စေချင်သလဲပြောပြပေးပါ
-လက်ရှိအရန်သားဖွားတွေလုပ်ခဲ့တာတွေမှာ တန်ဖိုးအထားဆုံးအကြိုက်ဆုံးလုပ်ဆောင်မှု ကိုပြောပြပါ
-စိတ်ထဲမှာအားမလိုအားမရဖြစ်ပြီး လက်ရှိ ထက်သူတို့ကို ဘာတွေပိုလုပ်တတ်စေချင်သေးလဲ/ဘာတွေပိုလုပ်တတ်ရင်ကောင်းမယ်ထင်လဲ

၅. လုပ်ငန်းတာဝန်ပေးခြင်းဆိုင်ရာ ဖြစ်နိုင်ခြေရှိ၊ မရှိ

သားဖွားဆရာမတစ်ဦးအနေနှင့် အခုမေးတဲ့ လုပ်ငန်းတာဝန်တွေကို အရန်သားဖွားဆရာမများအနေနဲ့ လုပ်နိုင်၊မလုပ်နိုင်၊ ဖြစ်နိုင်၊ မဖြစ်နိုင်မေးမြန်းခြင်းဖြစ်ပါတယ်။

-ကိုယ်ဝန်ဆောင်မိခင်တွေကိုသောက်ဆေးတာဝန်ယူတိုက်ကျွေးစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
- မီးတွင်းကာလမှာသွေးသွန်တာကို ကာကွယ်ဖို့ Misoprostol ဆိုတဲ့ဆေးကို အရန်သားဖွားဆရာမများက တာဝန်ယူပြီးတိုက်ကျွေးစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-မီးတွင်းကာလမှာသွေးသွန်တာကို ကုသဖို့ Misoprostol ဆိုတဲ့ဆေးကို အရန်သားဖွားဆရာမများက တာဝန်ယူပြီးတိုက်ကျွေးစေခြင်း နှင့် လွှဲပေပြောင်းစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-မီးတွင်းကာလမှာ အဖျားတက်တာကို ကုသဖို့ ပဋိဇီဝဆေးတစ်မျိုးကို အရန်သားဖွားဆရာမများက တာဝန်ယူပြီးတိုက်ကျွေးစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-နောက်ပြီး မွေးကင်းစကလေးတွေမှာရော အသက်ပုံမှန်မရှူတဲ့ ကလေးမျိုးကို အသက်ရှူကိရိယာ အိပ်နဲ့နှာခေါင်းခွက်ကို သုံးပြီး အသက်ကယ်ပြုစု
စောင့်ရှောက်ခိုင်းမယ်ဆိုရင်ကောအရန်သားဖွားဆရာများအနေနဲ့ဖြစ်နိုင်မလား
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-အကယ်၍များ အခဲ့လုပ်ငန်းတွေကို အရန်သားဖွားဆရာမတွေကို တာဝန်ယူလုပ်ခိုင်းမယ်ဆိုရင် ဘယ်လိုဟာမျိုးကို တာဝန်ယူလုပ်ခိုင်းစေသင့်သလဲ (ဘာကြောင့်လဲ/ဘာတွေကိုတော့ မလုပ်ခိုင်းသင့်ဖူးလဲ/ဘာဖြစ်လို့လဲ/ဘာတွေလုပ်ပေးရင်သူတို့အခဲ့ဒါတွေအားလုံးလုပ်ပေးနိုင်မယ် လုပ်ခိုင်းလို့ဖြစ်တယ်ထင်လဲ)

သင်၏ကိုယ်ရေးအချက်အလက်အနည်းငယ်အား မေးမြန်းမည်ဖြစ်ပါသည်။ ဤအချက်အလက်များသည် ကျေးရွာတွင်မိခင်နှင့်ကလေးကျန်းမာရေးစောင့်ရှောက်မှုလုပ်ငန်းများတွင်အရံသားဖွားဆရာမများ၏ အခန်းကဏ္ဍအပေါ် သုတေသနပြုလုပ်ရန်အတွက်အထောက်အကူပြုစေရန်ဖြစ်ပါသည်။
သင်မဖြေဆိုလိုသောမေးခွန်းများကို ဖြေဆိုရန်ငြင်းဆန်နိုင်ပါသည်။ သင်၏ကိုယ်ရေးအချက်အလက်များအား သုတေသနအတွက်သာ မေးမြန်းခြင်းဖြစ်ပြီး အခြားမည်သူ့ကိုမျှ ထုတ်ဖော်ပြောကြားခြင်းမပြုပါ။ ထို့ပြင် ကောက်ယူရရှိသောအချက်အလက်များကို လုံခြုံစွာသိမ်းဆည်းထားမည်ဖြစ်ပါသည်။

၁	အသက် (ပြည့်ပြီးအသက်)	
၂	ပညာရေးအခြေအနေ (၁) မူလတန်း (သူငယ်တန်းမှ ၄တန်း) (၂) အလယ်တန်း (၄တန်းအောင်မှ ၈တန်း) (၃) အထက်တန်း (၈တန်းအောင်မှ ၁၀တန်း) (၄) တက္ကသိုလ်ပညာရေး (၅) ဘွဲ့ရ	
၃	အစိုးရဝန်ထမ်းအဖြစ် တာဝန်ထမ်းဆောင်ခဲ့သည့် နှစ်ပေါင်း (နှစ်အရေအတွက်)	
၄	လက်ရှိရာထူး (ဖော်ပြပါ)	
၅	လက်ရှိရာထူးဖြင့် တာဝန်ထမ်းဆောင်ခဲ့သည့် နှစ်ပေါင်း (နှစ်အရေအတွက်)	
၆	အရံသားဖွားဆရာမများ မွေးထုတ်ခြင်းအစီအစဉ် နှင့် ၎င်းတို့၏လုပ်ငန်းဆောင်တာများတွင် သင်၏အခန်းကဏ္ဍ (၁) သင်တန်းသူများ ရွေးချယ်ခြင်း (၂) သင်တန်းပေးခြင်း (၃) ကြီးကြပ်ခြင်း (၄) စီမံခန့်ခွဲခြင်း (၅) အခြား (ဖော်ပြပါ).....	

အဓိကသတင်းအချက်အလက်ပေးသူနှင့် တစ်ဦးချင်းဆွေးနွေးခြင်း နှင့် သက်ဆိုင်ရာလမ်းညွှန်မေးခွန်းလွှာ

(၁) အဓိကသတင်းအချက်အလက်ပေးသူနှင့် တစ်ဦးချင်းဆွေးနွေးခြင်း (ကျန်းမာရေးဝန်ထမ်း၊ ဆုံးဖြစ်ချက်ချသူများ)

၁. ကျေးရွာအဆင့်ရှိ မိခင်နှင့်ကလေးကျန်းမာရေး စောင့်ရှောက်မှုလုပ်ငန်းများကို အဓိကပြုလုပ်နေတဲ့ လူတွေကိုပြောပြပေးပါ။

-ဘယ်သူတွေလဲ

-တစ်ဦးနဲ့တစ်ဦး ဘယ်လိုကွာလဲ(ကျွမ်းကျင်မှု၊ အသက်အရွယ်၊ အတွေ့အကြုံ)

-သူတို့တွေလုပ်ပေးတဲ့ ကိုယ်ဝန်ဆောင်စောင့်ရှောက်မှု၊ မွေးဖွားပေးမှု နဲ့ မီးတွင်းကာလပြုစုစောင့်ရှောက်မှုတွေ ကဘာတွေဘယ်လိုကွာခြားမှုရှိလဲ (လူ၊နေရာ စသဖြင့်)

တခြားကျန်းမာရေးစောင့်ရှောက်မှုတွေ/ကာကွယ်ဆေးထိုးတာ/ပဋိသန္ဓေတားဆေးပေးတာ)

အဲ့တာတွေမှာဘာတွေဘယ်လိုကွာခြားမှုရှိလဲ (လူ၊နေရာ စသဖြင့်)

လက်ရှိအရန်သားဖွားဆရာမများရဲ့အခန်းကဏ္ဍကို ပြောပြပေးပါ

-အရန်သားဖွားဆရာမများဟာ

သူတို့ကိုပေးထားတဲ့တာဝန်နဲ့လုပ်ပိုင်ခွင့်ကိုကျော်လွန်ပြီးလုပ်နေတယ်လို့ထင်ပါသလား

-ဝေးလန်ခေါင်ဖျားတဲ့ဒေသမျိုးကြီးကြပ်လမ်းညွှန်မပေးနိုင်တဲ့ဒေသမျိုးမှာ

ဘာတွေလုပ်ဆောင်နေကြလဲ/ဘာဖြစ်လို့လုပ်တယ်ထင်လဲ/ဘယ်လိုသဘောရလဲ

၂. အရန်သားဖွားဆရာမများအပေါ် သဘောထားအမြင်

-အရန်သားဖွားဆရာမများသင်တန်းပေးမွေးထုတ်ခြင်းအပေါ် သင့်ရဲ့သဘောထားအမြင်ကိုပြောပြပါ။

-သူတို့ဟာကျေးရွာကျန်းမာရေးစောင့်ရှောက်ရေးလုပ်ငန်းတွေကို အကျိုးပြုတယ်လို့ထင်ပါသလား (ဘာကြောင့်လဲ

-မွေးထုတ်ထားတဲ့လူထုကျန်းမာရေးလုပ်သားတွေကိုရော ဘယ်လိုမြင်ပါလဲ

(သူတို့ရဲ့ကျွမ်းကျင်မှု/လုပ်ဆောင်မှု)

-ရပ်ရွာထဲမှာ သူတို့ရဲ့လက်ရှိအနေအထား

-လက်ရှိလုပ်ရပ်အပေါ် စိုးရိမ်ပူပန်မှု

၃. အရန်သားဖွားဆရာမများ သင်တန်းပေးမွေးထုတ်ခြင်း စီမံကိန်း၏အကျိုးသက်ရောက်မှု

-အရန်သားဖွားဆရာမများ သင်တန်းပေးမွေးထုတ်ခြင်း စီမံကိန်း၏အဓိက ရည်မှန်းချက်ကဘာပါလဲ

- လက်ရှိ လုပ်ရပ်နဲ့ အဲ့ဒီရည်မှန်းချက်နဲ့ကိုက်ညီတယ်လို့ထင်ပါသလား

(အခုရည်မှန်းချက်အောင်မြင်ပြီလို့ပြောနိုင်ပြီလား/ဒါမှမဟုတ်ရေရှည်မှာအောင်မြင်နိုင်မလား ဆွေးနွေးပေးပါ)

-သင့်မြို့နယ်မှာအရန်သားဖွားဆရာမများသင်တန်းပေးမွေးထုတ်ခြင်း၊

လုပ်ငန်းများတာဝန်ပေးလုပ်စေတဲ့အပိုင်းတွေမှာ တွေ့ကြုံရတဲ့ အခက်အခဲများကို ပြောပြပေးပါ (ရွေးချယ်ခြင်း/သင်တန်းပေးခြင်း/ကြီးကြပ်ခြင်း/ပစ္စည်းကိရိယာများရရှိမှု/စာရင်းဇယားကောက်ယူမှု စစ်းစစ်မှု)

-တွေ့ကြုံရတဲ့ အခက်အခဲတွေကို ဘာတွေဘယ်လိုဖြေရှင်းနိုင်ခဲ့လဲ/မဖြေရှင်းနိုင်တာဘာတွေရှိလဲ

၄. လုပ်ငန်းတာဝန်ပေးအပ်ခြင်းဆိုင်ရာ ဖြစ်နိုင်ခြေရှိမရှိ

-အရန်သားဖွားဆရာမများအားလုပ်ငန်းတာဝန်ပေးအပ်ခြင်းဆိုင်ရာလမ်းညွှန်မှုအားကြားဖူးပါသလား

-လက်ရှိလုပ်ငန်းတွေမှာဘာတွေလုပ်နိုင်ပြီးဘာတွေမလုပ်နိုင်တာရှိလဲ

ဘာဖြစ်လို့အဲ့လိုဖြစ်တယ်လို့ထင်လဲ

-အရန်သားဖွားဆရာမများဟာ ဘယ်လိုလုပ်ငန်းတွေကို ပိုလုပ်နိုင်မယ်ထင်လဲ

(လက်ရှိမလုပ်ပေမယ့်လည်းထပ်ပြီးတာဝန်ပေးလို့ရနိုင်မယ့်လုပ်ငန်းတွေဘာတွေရှိလဲ/ ဘာတွေကိုထပ်သင်ပေးလို့ရမယ်ထင်လဲ/ထပ်သင်ပေးသင့်သလဲ)

APPENDIX ၅. လုပ်ငန်းတာဝန်ပေးခြင်းဆိုင်ရာ ဖြစ်နိုင်ခြေရှိ၊ မရှိ

သားဖွားဆရာမတစ်ဦးအနေနှင့် အခုမေးတဲ့ လုပ်ငန်းတာဝန်တွေကို
အရန်သားဖွားဆရာမများအနေနဲ့ လုပ်နိုင်၊မလုပ်နိုင်၊ ဖြစ်နိုင်၊ မဖြစ်နိုင်မေးမြန်းခြင်းဖြစ်ပါတယ်။
-ကိုယ်ဝန်ဆောင်မိခင်တွေကိုသောက်ဆေးတာဝန်ယူတိုက်ကျွေးစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
- မီးတွင်းကာလမှာသွေးသွန်တာကို ကာကွယ်ဖို့ Misoprostol ဆိုတဲ့ဆေးကို
အရန်သားဖွားဆရာမများက တာဝန်ယူပြီးတိုက်ကျွေးစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-မီးတွင်းကာလမှာသွေးသွန်တာကို ကုသဖို့ Misoprostol ဆိုတဲ့ဆေးကို
အရန်သားဖွားဆရာမများက တာဝန်ယူပြီးတိုက်ကျွေးစေခြင်း နှင့် လွှဲပေပြောင်းစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-မီးတွင်းကာလမှာ အဖျားတက်တာကို ကုသဖို့ ပဋိဇီဝဆေးတစ်မျိုးကို အရန်သားဖွားဆရာမများက
တာဝန်ယူပြီးတိုက်ကျွေးစေခြင်း
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-နောက်ပြီး မွေးကင်းစကလေးတွေမှာရော အသက်ပုံမှန်မရှူတဲ့ ကလေးမျိုးကို အသက်ရှူကိရိယာ
အိပ်နဲ့နှာခေါင်းခွက်ကို သုံးပြီး အသက်ကယ်ပြုစုစောင့်ရှောက်ခိုင်းမယဆိုရင်ကော
(ဖြစ်နိုင်/မဖြစ်နိုင်/ဘာကြောင့်လဲ)
-အကယ်၍များ အဲ့လုပ်ငန်းတွေကို အရန်သားဖွားဆရာမတွေကို တာဝန်ယူလုပ်ခိုင်းမယ်ဆိုရင်
ဘယ်လိုဟာမျိုးကို တာဝန်ယူလုပ်ခိုင်းစေသင့်သလဲ (ဘာကြောင့်လဲ/ဘာတွေကိုတော့
မလုပ်ခိုင်းသင့်ဖူးလဲ/ဘာဖြစ်လို့လဲ/ဘာတွေလုပ်ပေးရင်သူတို့အဲ့ဒါတွေအားလုံးလုပ်ပေးနိုင်မယ်/
လုပ်ခိုင်းလို့ဖြစ်တယ်ထင်လဲ
-သင့်အနေနဲ့ ဘယ်လိုအခြေအနေမျိုးမှာ အရန်သားဖွားဆရာမတစ်ဦးဟာ
အထက်ကပြောခဲ့တဲ့တာဝန်တွေကို လုပ်နိုင်၊ မလုပ်နိုင်၊ လုပ်စေရန်သင့်၊မသင့် ပြောပြပါ
(ဝေးလံခေါင်ဖျားဒေသ/သင်တန်းအခြေအနေစသဖြင့်/
-ကြုံတွေ့ရမည့် အခက်အခဲများ
(လိုအပ်မည့် ကျွမ်းကျင်မှု/ပစ္စည်းကိရိယာ/ဘာတွေခက်ခဲမယ်ထင်လဲ)
-သင့်အနေနဲ့ထပ်မံဖြည့်စွက်ချင်တာများရှိလျှင်ပြောပါ
-ကျေးဇူးတင်ပါတယ်

မြန်မာနိုင်ငံ၊ လူထုအခြေပြု မိခင်နှင့်ကလေး ကျန်းမာရေးစောင့်ရှောက်မှုလုပ်ငန်းများ ဆောင်ရွက်နေသည့် အရန်သားဖွားဆရာမများ၏ အခန်းကဏ္ဍ မြှင့်တင်နိုင်ရေးဆိုင်ရာ ဆန်းစစ်မှုသုတေသန

၁။ အမှတ်စဉ် |___|___|___|

၂။ နေထိုင်ရာကျေးရွာအမည် ---------- |___|___|

၃။ ကျေးလက်ကျန်းမာရေးဌာနခွဲအမည် (Sub center) ---------- |___|___|

၄။ ကျေးလက်ကျန်းမာရေးဌာန (RHC) ---------- |___|___|

၅။ မြို့နယ် (ဂန့်ဂေါ = ၀၁၊ ငဖဲ = ၀၂၊ ဆိပ်ဖြူ=၀၃) |___|___|

၆။ ဝေးလံခေါင်ဖျားသောဒေသ ၁။ ဟုတ် ၂။ မဟုတ် |___|

အပိုင်း၁။ ကိုယ်ရေးအချက်အလက်			Coding
၁။	ဖြေဆိုသူ၏အသက် (ပြည့်ပြီးနှစ်)	----------နှစ်	|___|___|
၂။	ပညာအရည်အချင်း	၁။ မူလတန်းပညာအဆင့် (သူငယ်တန်းမှ စတုတ္ထတန်းအထိ) ၂။ အလယ်တန်းပညာအဆင့် (စတုတ္ထတန်းအောင်မှ အဋ္ဌမတန်းအထိ) ၃။ အထက်တန်းပညာအဆင့် (အဋ္ဌမတန်းအောင်မှ ဒသမတန်းအထိ) ၄။ တက္ကသိုလ်/ကောလိပ်ပညာအဆင့် ၅။ ဘွဲ့ရ	|___|___|
၃။	လူမျိုး	၁။ ဗမာ ၂။ အခြား (ဖော်ပြပါ)----------	|___|
၄။	လက်ရှိ ကျေးရွာတွင် နေထိုင်ခဲ့သည့် နှစ်ပေါင်း	---------- နှစ်	|___|___|
၅။	အရန်သားဖွားဆရာမ အလုပ်မှ လွဲ၍ အဓိက ဝင်ငွေရသည့် အခြား အလုပ်အကိုင်	၁။ မှီခို (မေးခွန်း ၆(ခ) သို့သွားပါ။) ၂။ အိမ်ရှင်မ (မေးခွန်း ၆(ခ) သို့သွားပါ။) ၃။ တစ်နေ့လုပ်တစ်နေ့စား/ကျပန်း ၄။ လယ်ယာ/ကိုင်းလုပ်ငန်း ၅။ ကိုယ်ပိုင်လုပ်ငန်း(အသေးစား) ၆။ ကိုယ်ပိုင်လုပ်ငန်း(အကြီးစား) ၇။ အစိုးရဝန်ထမ်း ၈။ အခြား (ဖော်ပြပါ)----------	|___|___|
၆။	အခြားအလုပ်အကိုင်မှ ရရှိသော	---------- |___|___|___|___|___|___|___|

(က)	တစ်လ ပျမ်းမျှ ဝင်ငွေ	ကျပ်	
၆။ (ခ)	မိသားစု၏ တစ်လပျမ်းမျှဝင်ငွေ	---------- |__|__|__|__|__|__|__| ကျပ်	
၇။	မိသားစုဝင်စုစုပေါင်း	---------- ယောက်	|__|__|
၈။	လက်ရှိ အိမ်ထောင်ရေး အခြေအနေ	၁။ အပျိုု (မေးခွန်း ၁၀ သို့သွားပါ) ၂။ အိမ်ထောင်ရှိ ၃။ ကွဲကွာ/ကွာရှင်း ၄။ မုဆိုးမ	|__|
၉။	အိမ်ထောင်ရှိပါက လက်ရှိ အသက်ရှင်လျက် ရှိသော ကလေးဦးရေ	---------- ယောက်	|__|__|
၁၀။	သင့်တွင် ကိုယ်ပိုင်လက်ကိုင်ဖုန်း ရှိပါသလား	၁။ ရှိ ၂။ မရှိ	|__|
အပိုင်း ၂။ အရန်သားဖွားဆရာမသင်တန်းနှင့်ကြီးကြပ်လမ်းညွှန်မှု			
၁၁။	ပထမဆုံး အရန်သားဖွားဆရာမ သင်တန်း တက်သည့် ခုနှစ်	----------ခုနှစ်	
၁၂။	ပထမဆုံး အရန်သားဖွားဆရာမ သင်တန်းကာလ	---------- လ	|__|
၁၃။	အရန်သားဖွားဆရာမအဖြစ် စတင် ထမ်းဆောင် သည့် ကာလ (အကယ်၍ တစ်နှစ်အောက် ဖြစ်ပါက "၀၀" ဖြည့်ပါ။)	---------- နှစ်	|__|__|
၁၄။	အရန်သားဖွားဆရာမနှင့် ဆက်စပ်သည့် ဆင့်ပွား သင်တန်း ရရှိဘူးပါသလား။	၁။ ရ ၂။ မရ (မေးခွန်း ၁၇ သို့သွားပါ)	|__|
၁၅။	ရရှိဘူးပါက ဘယ်နှစ်ကြိမ် ရဘူး ပါသလဲ။	---------- ကြိမ်	|__|__|
၁၆။	နောက်ဆုံးအကြိမ် ရရှိဘူးသည့် သင်တန်း ခုနှစ်	----------ခုနှစ်	
၁၇။	အရန်သားဖွား ဆရာမ တစ်ယောက်အနေနဲ့ ကိုယ်ဝန်ဆောင် စောင့်ရှောက်မှု လုပ်ငန်းများ ဆောင်ရွက်ပါ သလား။	၁။ လုပ် ၂။ မလုပ် (မေးခွန်း ၁၉ သို့သွားပါ)	|__|
၁၈။	ကိုယ်ဝန်ဆောင် စောင့်ရှောက်မှု လုပ်ငန်းအား ဆောင်ရွက်ခဲ့သည့် နှစ်ပေါင်း (တစ်နှစ်အောက်ဖြစ်ပါက "၀၀"	---------- နှစ်	|__|__|

	ဖြည့်ပါ။)		
၁၉။	တစ်နှစ်အတွင်း ကိုယ်ဝန်ဆောင် စောင့်ရှောက်ခြင်းနှင့် ပတ်သက်သည့် မည်သည့်သင်တန်းမျိုးကို ရဘူးပါသလဲ။	၁။ ကိုယ်ဝန်ဆောင်စောင့်ရှောက်ခြင်း (သွေးပေါင်ချိန်၊ ဆီးစစ်ခြင်းစသဖြင့်) ၂။ ကိုယ်ဝန်ဆောင် စောင့်ရှောက်ခြင်းနှင့် ဆိုင်သည့် နှစ်သိမ့်ဆွေးနွေးပညာပေးခြင်း ၃။ ကိုယ်ဝန်ဆောင်မိခင်မှတဆင့် HIV/AIDS ကူးစက်ခြင်းအား PMCT နှင့် တခြား HIV နှင့် နွယ်သော အကြောင်းအရာ။ ၄။ ကိုယ်ဝန်ဆိပ်တက်ခြင်း၊ ပြုစုစောင့်ရှောက်ခြင်း။ ၅။ မီးတွင်းကာလသွေးသွန်ခြင်းနှင့် ပြုစုစောင့်ရှောက်ခြင်း ၆။ မရရှိဘူးပါ ၇။ အခြား (ဖော်ပြပါ)----------	|___| |___| |___| |___| |___| |___| |___|
၂၀။	သားဖွားဆရာမတစ်ဦးအနေဖြင့် ကျေးရွာ လူထု အတွင်း မီးဖွားခြင်း လုပ်ငန်းအား ဆောင်ရွက်ပါသလား။	၁။ လုပ် ၂။ မလုပ် (မေးခွန်း ၂၃ သို့သွားပါ)	|___|
၂၁။	မီးဖွားခြင်းလုပ်ငန်းအား ဆောင်ရွက်ခဲ့သည့် နှစ်ပေါင်း (တစ်နှစ်အောက်ဖြစ်ပါက "၀၀" ထည့်ပါ။)	---------- နှစ်	|___|___|
၂၂။	သင် AMW လုပ်သက်တလျှောက် ကိုယ်တိုင် မွေးခဲ့သည့် မိခင်ပေါင်း	---------- ယောက်	|___|___|___|
၂၃။	လွန်ခဲ့သော တစ်နှစ်အတွင်း ဖော်ပြပါသင်တန်း တခုခုကို ရရှိခဲ့ဘူးပါသလား။	၁။ ရိုးရိုးမွေးခြင်းအား စောင့်ရှောက်ခြင်း ၂။ Partograph အသုံးပြုခြင်း ၃။ Active management of third stage of labour (တတိယအဆင့် မွေးဖွားခြင်း) ၄။ အရေးပေါ်ကိုယ်ဝန်စောင့်ရှောက်ခြင်း (Emergency obstetric care)/ အသက်ကယ် ခြင်း/ Basic EmOc ၅။ သွေးသွန်ခြင်းအား ပြုစုစောင့်ရှောက်ခြင်း ၆။ မီးဖွားပြီးနောက် အဖျားရှိခြင်းအား ပြုစုစောင့်ရှောက်ခြင်း ၇။ အချင်းအားလက်ဖြင့်ခွာခြင်း ၈။ Magnesium Sulphate ဆေးအား အသုံးပြု၍ ကိုယ်ဝန်ဆိပ်တက်ခြင်းအား ပြုစုစောင့်ရှောက် ခြင်း	|___| |___| |___| |___| |___| |___| |___| |___|

		၉။ မရရှိဘူးပါ ၁၀။အခြား (ဖော်ပြပါ)----------	|__| |__|
၂၄။	အရန်သားဖွားဆရာမတယောက်အနေဖြင့် မွေးကင်းစ ကလေးပြုစုစောင့်ရှောက်ခြင်းအား ပြုလုပ်ပါသလား။	၁။ လုပ် ၂။ မလုပ် (မေးခွန်း ၂၇ သို့သွားပါ)	|__|
၂၅။	မွေးကင်းစကလေး ပြုစုစောင့်ရှောက်ခြင်းအား ဆောင်ရွက်ခဲ့သည့် နှစ်ပေါင်း	--------- နှစ်	|__|__|
၂၆။	လွန်ခဲ့သည့် တစ်နှစ်အတွင်း ဖော်ပြပါ မွေးကင်းစ ကလေးပြုစုစောင့်ရှောက်ခြင်း သင်တန်းအား ရရှိဘူး ပါသလား။	၁။ မွေးကင်းစကလေး စောင့်ရှောက်ခြင်း (Essential newborn care) ၂။ မွေးကင်းစကလေး အသက်ရှူနိုင်ရန် စောင့်ရှောက် ပေးခြင်း (ချွေစုပ်သည့်ပိုက် အသုံးပြု၍)	|__| |__|
၂၇။	သင့်အား သင့်လုပ်ငန်းနှင့် ပတ်သက်၍ နောက်ဆုံးအကြိမ် ရရှိခဲ့သည့် ကြီးကြပ်လမ်းညွှန်မှု	၁။ ရဘူး (၃ လအတွင်း) ၂။ ရဘူး (လွန်ခဲ့သည့် ၃ လကျော်က) ၃။ တစ်ခါမှမရဘူး	|__|
၂၈။	လွန်ခဲ့သည့် (၆)လက သင့်အား ကြီးကြပ်သည့် သားဖွားဆရာမနှင့် တွေ့ဆုံ ဆွေးနွေးဖြစ်ပါသလား။	၁။ ဖြစ် ၂။ မဖြစ် (မဖြစ်ပါက မေးခွန်း ၃၁ သို့သွားပါ။)	|__|__|
၂၉။	တွေ့ဆုံခဲ့ပါက (၆)လအတွင်း ဘယ်နှစ်ကြိမ် တွေ့ဆုံခဲ့ပါသလဲ။	----------ကြိမ်	|__|__|
၃၀။	သင်ရရှိသည့် ကြီးကြပ်လမ်းညွှန်မှုအား သင် ကျေနပ်မှု ရှိပါသလား။	၁။ ကြီးကြပ်လမ်းညွှန်မှုအား အလွန်ကျေနပ်သည်။ ၂။ ကြီးကြပ်လမ်းညွှန်မှုအားကျေနပ်သည်။ ၃။ မသေချာပါ။ ၄။ ကြီးကြပ်လမ်းညွှန်မှုအားကျေနပ်မှုမရှိပါ။ ၅။ ကြီးကြပ်လမ်းညွှန်မှု လုံးဝကျေနပ်မှုမရှိပါ။	|__|
၃၁။	စာရင်းဇယား ပြုစုရေးသွင်းခြင်းနှင့် ပတ်သက်၍ သင်တန်းရရှိဘူးပါသလား။	၁။ ရဘူး ၂။ မရဘူး	|__|
၃၂။	စာရင်းဇယား ပြုစုရေးသွင်းခြင်း ပြုလုပ်ရပါ သလား။	၁။ ရ ၂။ မရ (မရပါက မေးခွန်း ၃၅ သို့သွားပါ။)	|__|
၃၃။	စာရင်းဇယား ပြုစုရေးသွင်းရပါက ဘယ်လောက် တစ်ချိန် စာရင်းပြုစုပေးပို့ရပါသလဲ။	၁။ တစ်ပါတ်တခါ ၂။ (၂)ပါတ်တခါ ၃။ တစ်လတခါ ၄။ (၃)လတခါ	|__|

		၅။ (၆)လတခါ	
၃၄။	သင်ပေးပို့သော စာရင်းဇယားနှင့် ပတ်သက်၍ ပြန်လည် ရှင်းပြခြင်း၊ ပြန်လည်သတင်းပေးခြင်း ရှိပါသလား။	၁။ ရှိ ၂။ မရှိ	|___|
အပိုင်း ၃။ ကိုယ်ဝန်ဆောင်စောင့်ရှောက်မှု၊ မွေးဖွားခြင်းနှင့် မီးတွင်းကာလဆိုင်ရာ ဗဟုသုတမေးမြန်းခြင်း			
၃၅။	ကိုယ်ဝန်ဆောင်သည် တစ်ဦးအား နှစ်သိမ့် ဆွေးနွေးရာတွင် မည်သည့် အချက်များကို ဆွေးနွေးမည် နည်း။ (ဖတ်မပြပါနှင့်။ ဖြေကြားသည် ကိုသာ လိုက်မှတ်ရန်)	၁။ ကျွမ်းကျင်သူနှင့် မွေးဖွားရန် အရေးကြီးပုံ ၂။ ဆေးရုံ၊ဆေးခန်းတွင် မွေးဖွားသင့်ကြောင်း ဆွေးနွေးခြင်း ၃။ မည်သည့်နေ့ရက်တွင် မွေးဖွားနိုင်မည်ကို ခန့်မှန်း တွက်ချက်ခြင်း ၄။ အနည်းဆုံး ကိုယ်ဝန် (၄)ကြိမ် ပြသင့်ခြင်း ၅။ မေးခိုင်ကာကွယ်ဆေး (၂)ကြိမ် ထိုးခြင်း ၆။ သံဓာတ်ပါသော အားဆေးစားခြင်း ၇။ ကိုယ်ဝန်ဆောင်စဉ် အန္တရာယ်လက္ခဏာများ ဆွေးနွေးခြင်း ၈။ အစားအစာနှင့်ပတ်သက်၍ မျှတစွာ စားသုံးရန် ပြောကြားခြင်း ၉။ နားနားနေနေ နေခြင်းနှင့် အလေးအပင် အလွန်အကျွံ မခြင်းမှ ရှောင်ကြဉ်ခြင်း ၁၀။ အရေးပေါ်အခြေအနေတွင် အသုံးပြုရန် ငွေကြေး စုဆောင်းခိုင်းခြင်း ၁၁။ ကလေးမီးဖွားခြင်းအတွက် ကြိုတင် ပြင်ဆင်ခြင်း (ပစ္စည်း၊ အခန်း စသဖြင့်) ၁၂။ ကျန်းမာရေး ပြဿနာ တစ်စုံတစ်ရာ ပေါ်ပါက ချက်ချင်း ပြသခြင်း၊ ကုသမှု ခံခြင်း ၁၃။ အရေးပေါ်အခြေအနေအတွက် လမ်းပန်း ဆက်သွယ်ခြင်းအား ကြိုတင်စဉ်းစားခြင်း ၁၄။ ပထမ (၆)လအတွင်း မိခင်နို့ တစ်မျိုး တည်းသာ တိုက်ကျွေးရန်လိုခြင်း (မိခင်နို့မှတစ်ပါး အခြား မည်သည့် ဖြည့်စွက်စာကိုမှ (၆)လအတွင်း မတိုက်စေခြင်း) ၁၅။ နို့ဦးရည်တိုက်ကျွေးခြင်း	|___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___|

		၁၆။ ကလေးအား ချက်ခြင်းနို့တိုက်စေခြင်း	|___|
		၁၇။ ကလေးမွေးပြီးပြီးချင်း ရေမချိုးရန် ရှင်းပြခြင်း	|___|
		၁၈။ ကလေးချက်အတွင်းသို့ မည်သည့် ဆေးဝါး၊ ပစ္စည်းမှ မထည့် သင့်ကြောင်း ရှင်းပြခြင်း	|___|
		၁၉။ ကိုယ်ဝန်ဆောင်စဉ် HIV/AIDS ရောဂါ ရှိ/မရှိ သွေးဖောက် စစ်ဆေးခြင်း	|___|
		၂၀။ ကိုယ်ဝန်ဆောင်စဉ် ကာလသားရောဂါ ရှိ/မရှိ သွေးဖောက် စစ်ဆေးခြင်း	|___|
		၂၁။ ခြင်ထောင်ဖြင့် အိပ်စေခြင်း	|___|
		၂၂။ တစ်ကိုယ်ရည်သန့်ရှင်းခြင်းနှင့် ပတ်ဝန်းကျင် သန့်ရှင်းရေးအား ရှင်းပြခြင်း။	|___|
		၂၃။ နို့တိုက်ကျွေးစဉ် ရာသီထိန်နိုင်ခြင်း	|___|
		၂၄။ ပုံမှန် ဆရာမနှင့် ပြသခြင်း	|___|
၃၆။	ဆေးရုံတွင် မွေးဖွားသင့်သည့် ကိုယ်ဝန်သည် အမျိုးအစားများ ကို ဖော်ပြပါ။ (မဖတ်ပြပါနှင့်။ ဖြေကြားသည် ကိုသာ လိုက်မှတ်ရန်။)	၁။ အသက် (၁၈)နှစ်အောက်မိခင်	|___|
		၂။ အသက် (၃၅)နှစ်အထက်မိခင်	|___|
		၃။ အရပ် ၄၉ပေ ၁၈လက်မအောက်ရှိ မိခင်	|___|
		၄။ ယခင် ဗိုက်ခွဲမွေးဖူးသော ရာဇဝင်ရှိမိခင်	|___|
		၅။ သားဦးကိုယ်ဝန်	|___|
		၆။ ခလေး (၅)ဦးအထက် ကိုယ်ဝန်	|___|
		၇။ အမွာကိုယ်ဝန်ရှိနေခြင်း	|___|
		၈။ အနေအထားမမှန်သော ကိုယ်ဝန်	|___|
		၉။ အခြားရောဂါများနှင့်ကိုယ်ဝန်ဆောင်ခြင်း (နှလုံး၊ ရင်ကြပ်၊ သွေးတိုး၊ စသည်ဖြင့် ……)	|___|
		၁၀။ ကိုယ်ဝန်ဆောင်ရာဇဝင်မကောင်းခြင်း (ကိုယ်ဝန်ပျက်ကျခြင်း၊ အသေမွေးခြင်း)	|___|
		၁၁။ အခြား (ဖော်ပြပါ)----------	|___|

၃၇။	ကိုယ်ဝန်ဆောင်စဉ် ကြုံတွေ့ရသော အန္တရာယ် လက္ခဏာများကို ဖော်ပြပါ။ (မဖတ်ပြပါနှင့်။ ဖြေကြားသည်ကိုသာ လိုက်မှတ်ရန်။)	၁။ မိန်းမကိုယ်မှသွေးဆင်းခြင်း၊ ရေဆင်းခြင်း	|___|
		၂။ သတိလစ်ခြင်း/တက်ခြင်း	|___|
		၃။ ခေါင်းပြင်းထန်စွာကိုက်ခြင်း၊ အမြင်မှုန်ဝါးခြင်း၊ လျှပ်စီး လက်သကဲ့သို့ဖြစ်ခြင်း၊ နှစ်ထပ်မြင်ခြင်း၊ အန်ခြင်း၊ ရင်ညွန့်အောင့်ခြင်း	|___|
		၄။ ဖျားခြင်းနှင့် အိပ်ယာမှ မထနိုင်လောက်အောင် အားနဲခြင်း	|___|
		၅။ ဝမ်းဗိုက်အလွန်အမင်းအောင့်ခြင်း	|___|
		၆။ အသက်ရှူမြန်ခြင်း၊ အသက်ရှူခက်ခြင်း	|___|
		၇။ မျက်နှာ၊ လက်နှင့် ခြေများဖောရောင်လျှင်၊ ဆီးနည်း သွား လျှင်	|___|
		၈။ ရေမွှာစောစီးစွာပေါက်ခြင်း	|___|
		၉။ သွေးပေါင်တက်ခြင်း	|___|
		၁၀။ ကိုယ်ဝန်ဆောင်စဉ် ကလေးလူပ်ရှားမှုလျော့နည်း လျှင် (သို့) မရှိလျှင်	|___|
		၁၁။ အခြား(ဖော်ပြပါ)----------	|___|

၃၈။	မီးဖွားစဉ် ကြုံတွေ့ရသော အန္တရာယ် လက္ခဏာများကို ဖော်ပြပါ။ (မဖတ်ပြပါနှင့်။ ဖြေကြားသည် ကိုသာ လိုက်မှတ်ရန်။)	၁။ ရေမွှာပေါက်ပြီး(၆)နာရီကျော်သည်အထိ ဗိုက်မနာခြင်း	|___|
		၂။ ဗိုက်နာခြင်း (၁၂နာရီကျော်အောင် ဆက်တိုက်နာနေခြင်း)	|___|
		၃။ မွေးလမ်းကြောင်းမှ သွေးများစွာဆင်းခြင်း (အချင်းမကျမီ)	|___|
		၄။ မွေးလမ်းကြောင်းမှ သွေးများစွာဆင်းခြင်း (အချင်းပြည့်စုံစွာ ချပြီးလျှင်) (၅မိနစ်အတွင်း အောက်ခံ ပစ္စည်း/ အဝတ်တွင် သွေးများ ရွဲနစ်နေလျှင်)	|___|
		၅။ ကလေးထွက်ပြီး တစ်နာရီကြာသည်အထိ အချင်းမကျ လျှင်	|___|
		၆။ အသက်ရှူရန် ခက်ခဲလာခြင်း၊ သွေးလန့်ခြင်း လက္ခဏာ များ စမ်းတွေ့ခြင်း (အရေပြား အေးစက်သွားခြင်း၊ သွေးခုန်နှုန်းမြန်၍ အားဖျော့လာခြင်း)	|___|
		၇။ တက်ခြင်း(သို့)သတိလစ်ခြင်း	|___|
		၈။ အန္တရာယ်ရှိသောဖျားခြင်း	|___|
		၉။ ဝမ်းဗိုက်အပြင်းအထန်နာကျင်ခြင်း	|___|
		၁၀။ ကလေးနှလုံးခုန်နှုန်း (တစ်မိနစ်လျှင် ၁၂၀အောက် (သို့) ၁၆၀ အထက် ရောက်လျှင်)	|___|
		၁၁။ ချက်ကြိုးကျွံခြင်း	|___|
		၁၂။ ကလေးအနေအထား ကန့်လန့်ဖြစ်နေ ခြင်း (Transverse lie)	|___|
		၁၃။ တင်ပဆုံပိုင်းဖြင့် ဦးတိုက်ခြင်း	|___|
		၁၄။ သွေးပေါင်တက်ခြင်း	|___|
		၁၅။ ရေမွှာနည်း/ ရေမွှာနောက်/ ရေမွှာ ငယ်ချိုးပါ	|___|
		၁၆။ အခြား (ဖော်ပြပါ)----------	|___|

၃၉။	မွေးကင်းစ ကလေးဆိုင်ရာ အန္တရာယ် လက္ခဏာများကို ဖော်ပြပါ။ (မဖတ်ပြပါနှင့်။ ဖြေကြားသည်ကိုသာ လိုက်မှတ်ရန်) (အသက်ရှူသွင်းစဉ် နံရိုးအောက် ရင်ဘတ်ချိုင့်ဝင်ခြင်း)	၁။ အသက်ရှူခက်ခဲခြင်း (တစ်မိနစ်လျှင် အကြိမ် ၆၀ ထက် ပိုခြင်း (သို့) လျော့နည်းခြင်း) ၂။ အလွန်အမင်းငိုခြင်း (ဂဏှာမငြိမ်ခြင်း၊ အထိမခံခြင်း) ၃။ ချက်တစ်ဝိုက် ရောင်ရမ်းခြင်း၊ ပြည်တည်၊ သွေးထွက်ခြင်း ၄။ မျက်စိယောင်၍ ပြည်ထွက်ခြင်း ၅။ တက်ခြင်း ၆။ ဖျားလျှင် ၇။ ကိုယ်အေးစက်နေလျှင် ၈။ နို့လုံးဝမစို့တော့ခြင်း/ နို့စို့ လျော့နည်း သွားခြင်း ၉။ ခန္ဓာကိုယ်တွင် ပြည်တည်နာများပေါက်ခြင်း ၁၀။ စောစီးစွာအသားဝါခြင်း (အရေပြားနှင့်မျက်စိဝါခြင်း) ၁၁။ လမစေ့၊ ပေါင်မပြည့်၊ ကလေးသေးလွန်း ၁၂။ အခြား(ဖော်ပြပါ)----------	|___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___|
၄၀။	ကိုယ်ဝန်ဆောင် မိခင်တစ်ဦးသည် ကျွမ်းကျင်သော မွေးဖွားသူနှင့် အနည်းဆုံး ကိုယ်ဝန်ဆောင် စောင့်ရှောက်မှု အကြိမ် မည်မျှ ရှိသင့်သနည်း။	---------- ကြိမ်	|___|
၄၁။	မည်သည့်အချိန်များတွင် ကိုယ်ဝန်ဆောင် စောင့်ရှောက်မှု ခံယူသင့်ပါသလဲ။ (မဖတ်ပြပါနှင့်။ ဖြေကြားသည် ကိုသာ လိုက်မှတ်ရန်)	၁။ ပထမ ၄လအတွင်း စောနိုင်သမျှစောစော ၂။ ကိုယ်ဝန် ၆လမှ ၇လအတွင်း ၃။ ကိုယ်ဝန် ၈လ ၄။ ကိုယ်ဝန် ၉လ ၅။ အဖြေမမှန်ပါ	|___| |___| |___| |___| |___|
၄၂။	မီးဖွားပြီး (၁၄)ရက်အတွင်း မီးတွင်းကာလ စောင့်ရှောက်မှု ဘယ်နှစ်ကြိမ် အနည်းဆုံး ခံယူသင့်ပါသလဲ။	---------- ကြိမ်	|___|

၄၃။	မည်သည့်ရက်များတွင် မီးတွင်းကာလ စောင့်ရှောက်မှုအား ခံယူသင့်ပါသလဲ။	၁။ မွေးပြီးပြီးချင်း (၂၄ နာရီအတွင်း) ၂။ မွေးပြီး ၂ ရက်မှ ၃ ရက်အတွင်း (၄၈ နာရီမှ ၇၂ နာရီ အတွင်း) ၃။ မွေးပြီး ၇ ရက် ၄။ မွေးပြီး ၁၄ ရက်အတွင်း ၅။ အဖြေမမှန်ပါ	|___| |___| |___| |___| |___|
အပိုင်း ၄။ ကိုယ်ဝန်ဆောင်စဉ်၊ မီးဖွားစဉ်နှင့် မီးတွင်းကာလစောင့်ရှောက်မှု အလေ့အထ			
၄၄။	လွန်ခဲ့သည့် (၆)လအတွင်း ကိုယ်ဝန်ဆောင် စောင့်ရှောက်မှု ပေးခဲ့သည့် မိခင် အရေအတွက်	---------- ယောက်	|___|___|
၄၅။	ကိုယ်ဝန်ဆောင် စောင့်ရှောက်မှု ပေးရာတွင် သင် အမိကပြုလုပ်ခဲ့သည့်လုပ်ငန်းများကို ဖော်ပြပါ။ (မဖတ်ပြပါနှင့်။ ဖြေဆိုသည်ကိုသာ လိုက်မှတ်ရန်)	၁။ ကိုယ်ဝန်ဆောင်မှတ်တမ်းတင်ခြင်း ၂။ ကိုယ်အလေးချိန်ချိန်ခြင်း ၃။ အရပ်တိုင်းခြင်း ၄။ ကိုယ်ဝန်ဆောင်မှုရာဇဝင် မေးမြန်းခြင်း ၅။ ဝမ်းဗိုက်အားစမ်းသပ်ခြင်း ၆။ သွေးပေါင်ချိန်ခြင်း ၇။ ဆီးစစ်ခြင်း ၈။ ကလေးနှလုံးခုန်နှုန်းစမ်းသပ်ခြင်း ၉။ ကိုယ်ဝန်ဆောင်အားဆေးပေးခြင်း ၁၀။ အားဆေးထိုးနှံပေးခြင်း ၁၁။ ကိုယ်ဝန်ဆောင်အစားအသောက်နှင့် ပတ်သက်၍ နှစ်သိမ့်ဆွေးနွေးခြင်း ၁၂။ မွေးဖွားမည့်ရက်အား ခန့်မှန်းခြင်း ၁၃။ သွေးအားနည်းခြင်းအား ကြည့်ရှုခြင်း ၁၄။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___|
၄၆။	ကိုယ်ဝန်ဆောင် စောင့်ရှောက်မှု အား မည်သည့်နေရာတွင် အများဆုံး ပြုလုပ်ပါ သနည်း။	၁။ မိမိအိမ် ၂။ လူနာအိမ် ၃။ ဥက္ကဋ္ဌအိမ်/ ဓမ္မာရုံ/ စာသင်ကျောင်း ၄။ RHC/ Sub Center/ (သားဖွားဆရာမ ဆေးခန်း)	|___|

၄၇။	လွန်ခဲ့သည့် (၆)လအတွင်း အထက်သို့ လွှဲပြောင်းပြေးခဲ့ရသည့် ကိုယ်ဝန်ဆောင် မိခင်အရေအတွက်	---------- ယောက်	_____
၄၈။	အများဆုံး လွှဲပြောင်းပေးပို့ခဲ့ရသည့် အကြောင်းရင်း (ဖော်ပြပါ)	၁။ သားဦးကိုယ်ဝန် ၂။ ကိုယ်ဝန်ဆောင်အကြိမ်များသောမိခင် ၃။ အရပ်ပုခြင်း ၄။ အမွှာဖြစ်ခြင်း ၅။ ကိုယ်ဝန်အနေအထားမမှန်ခြင်း ၆။ ကိုယ်ဝန်ဆိပ်တက်ခြင်း ၇။ ကိုယ်ဝန်ဆောင်ရာဇဝင်မကောင်းခြင်း ၈။ ရောဂါနှင့်တွဲနေသော ကိုယ်ဝန် ၉။ ကိုယ်ဝန်ပျက်ကျခြင်း ၁၀။ ဖောရောင်ခြင်း ၁၁။ သွေးတိုးခြင်း ၁၂။ ရက်လွန်ခြင်း ၁၃။ မိခင်၏အသက်အရွယ် (၁၈နှစ်အောက် (သို့) ၃၅နှစ် အထက်) ၁၄။ အခြား (ဖော်ပြပါ)----------	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
၄၉။	အထက်သို့ညွှန်းပို့ရာတွင် မည်သူ့ဆီသို့ အဓိကလွှဲပြောင်းပါသနည်း။	၁။ ဆရာဝန် ၂။ ကျန်းမာရေးမှူး ၃။ အမျိုးသမီးကျန်းမာရေးဆရာမ ၄။ သားဖွားဆရာမ	_____
၅၀။	ကိုယ်ဝန်ဆောင်မိခင်အား သောက်ဆေး ပေးဖူးပါသလား	၁။ ပေးဘူး ၂။ မပေးဘူး (မေးခွန်း ၅၂ သို့သွားပါ)	_____

၅၁။	ပေးဖူးပါက ဘာဆေးပေးပါသလဲ	၁။ သံဓာတ်အားဆေး (FeSO4, Iron/folate) ၂။ အားဆေး/ Vitamin A ၃။ သံချဆေး ၄။ B1 ၅။ Paracetamol ၆။ Amoxil ၇။ ORS ၈။ Burmeton ၉။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___| |___| |___|
၅၂။	လွန်ခဲ့သော (၆)လအတွင်း စုစုပေါင်း မီးဖွားပေးခဲ့သည့် မိခင်ပေါင်း	---------- ယောက်	|___|___|
၅၃။	မည်သည့်နေရာတွင် မွေးဖွားပေးလေ့ရှိပါသလဲ	၁။ မိမိအိမ် ၂။ လူနာအိမ် ၃။ အခြား(ဖော်ပြပါ)----------	|___|
၅၄။	မီးဖွားရာတွင် တစ်ခါသုံးမွေးထုတ်အား အသုံးပြုလေ့ ရှိပါသလား	၁။ အသုံးပြုသည် ၂။ အသုံးမပြုပါ (မေးခွန်း ၅၇ သို့သွားပါ)	|___|
၅၅။	တစ်ခါသုံးမွေးထုတ်အား အသုံးပြုရာတွင်	၁။ အမြဲအသုံးပြုသည် (၈၁-၁၀၀%) ၂။ အများအားဖြင့် အသုံးပြုလေ့ရှိသည် (၅၀-၈၀%) ၃။ တဝက်အသုံးပြုသည် (၅၀%) ၄။ တစ်ခါတစ်ရံအသုံးပြုသည် (၂၅-၅၀%) ၅။ အသုံးပြုမှုနည်းပါးသည် (<၂၅%)	|___|
၅၆။	လက်ရှိ သင့်လက်ထဲတွင်ရှိသော တစ်ခါသုံး မွေးထုတ်အရေအတွက်	----------ထုတ်	|___|___|
၅၇။	Partograph အသုံးပြုလေ့ ရှိပါသလား။	၁။ အသုံးပြုလေ့ရှိသည်။ ၂။ အသုံးပြုလေ့မရှိပါ (မေးခွန်း ၅၉သို့သွားပါ)	|___|
၅၈။	သင့်အနေဖြင့် Parto-graph အသုံးပြု၍ မွေးဖွားခြင်းအား မည်သို့ ပြုလုပ်ပါသလဲ။	၁။ အမြဲအသုံးပြုသည် (၈၁-၁၀၀%) ၂။ အများအားဖြင့် အသုံးပြုလေ့ရှိသည် (၅၀-၈၀%) ၃။ တဝက်ခန့်အသုံးပြုသည် (၅၀%) ၄။ တစ်ခါတစ်ရံအသုံးပြုသည် (၂၅-၅၀%) ၅။ အသုံးပြုမှုနည်းပါးသည် (<၂၅%)	|___|

၅၉။	တတိယအဆင့် မွေးဖွားခြင်းတွင် သင် ဆောင်ရွက်သော လုပ်ငန်းများကို ဖေါ်ပြပါ။	၁။ ကလေးမွေးဖွားပြီးသည်နှင့် misoprostol တိုက်ကျွေးခြင်း ၂။ အချင်းမွေးထွက်မလာမီ ချက်ကြိုးကို ဖိညှပ်ပြီး ဖြတ်ခြင်း ၃။ ချက်ကြိုးကိုထိန်း၍ အချင်းကျစေရန် ဆောင်ရွက် ပေးခြင်း ၄။ သားအိမ်ထိပ်လုံး မာလာအောင် ပွတ်ပေးခြင်း ၅။ အချင်းနှင့် အမြှေးပါးများ စုံမစုံ စစ်ဆေးခြင်း	|___| |___| |___| |___| |___|
၆၀။	သင့်အနေဖြင့် တတိယအဆင့် မွေးဖွားခြင်း (Active management of third stage of labour) အား ရိုးရိုးမွေးလူနာများတွင် ပြုလုပ်လေ့ ရှိပါသလား။	၁။ အမြဲပြုလုပ်သည် ၂။ အများအားဖြင့်ပြုလုပ်သည် ၃။ တဝက်ခန့်ပြုလုပ်သည် ၄။ တစ်ခါတစ်ရံပြုလုပ်သည်။ ၅။ တစ်ခါမှမလုပ်ဘူးပါ။	|___|
၆၁။	မွေးဖွားပြီး သွေးသွန်ခြင်းအား ကြံ့ဖူးပါ သလား	၁။ ကြုံဘူးသည် ၂။ မကြုံဘူး ပါ	|___|
၆၂။	Misoprostol ဆေးအား မီးတွင်း သွေးသွန် ခြင်းအား ကာကွယ်ရန် မိခင်အား ပေးလေ့ ရှိပါ သလား။	၁။ ပေးဘူး ၂။ မပေးဘူးပါ (မေးခွန်း ၆၆ သို့သွားပါ)	|___|
၆၃။	Misoprostol ဆေးအား မည်သည့် အချိန်တွင် ပေးပါသလဲ။	၁။ ကလေးထွက်ပြီးပြီးချင်း တစ်မိနစ်အတွင်း ၂။ ကလေးပုခုံးထွက်သည်နှင့် တပြိုင်နက် ၃။ အချင်းချပြီးနောက် ၄။ အခြား (ဖော်ပြပါ) ----------	|___|
၆၄။	မွေးမိခင်အား Misoprostol ဆေးပြား ဘယ်နှစ်ပြား တိုက်ပါသလဲ။	--------- ပြား	|___|
၆၅။	Misoprostol ဆေးအား ဘယ်ကရပါသနည်း	၁။ ကိုယ်ပိုင်ဝယ်သုံး ၂။ သားဖွားဆရာမ ၃။ ကျန်းမာရေးဌာန ၄။ INGO ၅။ အခြား(ဖော်ပြပါ)----------	|___|
၆၆။	သင့်တွင် ကိုယ်အပူချိန်တိုင်း သာမိုမီတာ ရှိပါသလား။	၁။ ရှိ ၂။ မရှိ (မေးခွန်း ၆၈ သို့သွားပါ)	|___|

၆၇။	သာမိုမီတာရှိပါက မီးတွင်းကာလ မိခင်အား မည်သို့ တိုင်းလေ့ရှိပါသလဲ။	၁။ အမြဲအသုံးပြုသည် (၈၀-၁၀၀%) ၂။ အများအားဖြင့် အသုံးပြုလေ့ရှိသည် (၅၀-၈၀%) ၃။ တဝက်ခန့်အသုံးပြုသည် (၅၀%) ၄။ တစ်ခါတစ်ရံအသုံးပြုသည် (၂၅-၅၀%) ၅။ အသုံးပြုမှုနည်းပါးသည် (<၂၅%)	|___|
၆၈။	သင်ပြုလုပ်ခဲ့သည့် မွေးကင်းစကလေး စောင့်ရှောက်မှု လုပ်ငန်းများမှာ	၁။ နှာခေါင်း၊ ပါးစပ်ရှိ အညစ်အကြေးများအား အဝတ်စဖြင့် သန့်ရှင်းခြင်း ၂။ ချွဲဖယ်ပစ်ရန်လိုအပ်ပါက ချွဲဖယ်ခြင်း ၃။ နွေးထွေးစွာထားခြင်း ၄။ ချက်ခြင်း မိခင်နို့တိုက်ကျွေးခြင်း ၅။ မျက်စေ့သန့်ရှင်းခြင်း ၆။ ချက်ကို စစ်ဆေးခြင်း ၇။ ပေါင်ချိန် ၈။ အင်္ကျီစုံ/မစုံကြည့် ၉။ အခြား(ဖော်ပြပါ)----------	|___| |___| |___| |___| |___| |___| |___| |___| |___|
၆၉။	သင့်တွင် မွေးကင်းစကလေးအား အသက် ရှူရာတွင် အသုံးပြုသည့် ချွဲစုပ်ပိုက် ရှိပါ သလား	၁။ ရှိ ၂။ မရှိပါ (မေးခွန်း ၇၁ သို့သွားပါ)	|___|
၇၀။	ချွဲစုပ်ပိုက်ကို အသုံးပြု၍ သင် မွေးကင်းစ ကလေးအား အသက်ရှူမှုအား ကူညီဘူးပါသလား။	၁။ ကူညီဘူး ၂။ မကူညီဘူးပါ	|___|
၇၁။	လွန်ခဲ့သည့် (၆)လအတွင်း မီးဖွားစဉ်တွင် ကိုယ်ဝန်ဆောင် မိခင်အား လွှဲပြောင်း ပေးဘူးသည့် အရေအတွက်	---------- ယောက် (လွှဲပြောင်းခြင်းမရှိပါက မေးခွန်း ၇၅ သို့ သွားပါ)	|___|___|

၇၂။	အများဆုံး လွှဲပြောင်းပေးခဲ့ရသည့် အဓိက အကြောင်းရင်းမှာ	၁။ မီးဖွားချိန်ကြာမြင့်ခြင်း ၂။ ရေမွှာပေါက်ပြီး (၆)နာရီကျော်သည်အထိ ဗိုက်မနာ တော့ခြင်း ၃။ တက်ခြင်း ၄။ သွေးသွန်ခြင်း ၅။ ချက်ကြိုးကျွံခြင်း ၆။ အချင်းကပ်ခြင်း ၇။ အသက်ရှူခက်ခဲခြင်း ၈။ မွေးကင်းစကလေး အန္တရာယ်လက္ခဏာ ရှိခြင်း ၉။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___| |___| |___|
၇၃။	လွှဲပြောင်းဘူးပါက မည်သည့် အထက် အဆင့်သို့ အဓိက လွှဲပြောင်းပေးပါ သနည်း။	၁။ ဆရာဝန် ၂။ ကျန်းမာရေးမှူး ၃။ အမျိုးသမီးကျန်းမာရေးဆရာမ ၄။ သားဖွားဆရာမ ၅။ အခြား (ဖော်ပြပါ) ----------	|___|
၇၄။	လွှဲပြောင်းပေးပို့စဉ် လူနာနှင့်အတူ ဆေးရုံသို့ လိုက်သွားပါသလား။	၁။ လိုက်သွားသည်။ ၂။ မလိုက်ပါ။	|___|
၇၅။	လွန်ခဲ့သည့်(၃)နှစ်အတွင်း မိခင် သေဆုံးခြင်း ကြုံဘူးပါသလား။	၁။ ကြုံဘူးသည်။ ၂။ မကြုံဘူးပါ။ (မေးခွန်း ၇၇ သို့ သွားပါ)	|___|
၇၆။	ကြုံဘူးပါက သေဆုံးမိခင် အရေအတွက်	---------- ယောက်	|___|___|
၇၇။	လွန်ခဲ့သည့်(၆)လအတွင်း မီးတွင်းကာလ စောင့်ရှောက်ခဲ့သည့် မိခင် အရေအတွက်	---------- ယောက်	|___|___|
၇၈။	မီးတွင်းကာလ စောင့်ရှောက်မှုအား မည်သည့် နေရာတွင် ပြုလုပ်လေ့ ရှိပါသလဲ။	၁။ မိမိအိမ် ၂။ လူနာအိမ် ၃။ အခြား (ဖော်ပြပါ)----------	|___|
၇၉။	မီးတွင်းကာလ စောင့်ရှောက်မှု ပေးရာတွင် ပထမ(၁၄)ရက် အတွင်း စောင့်ရှောက်မှု ပေးခဲ့သည့် အကြိမ်ပေါင်း မိခင်အရေအတွက်	---------- ယောက် ကြိမ်	|___|___|

၈၀။	မီးတွင်းကာလ စောင့်ရှောက်မှု ပေးရာတွင် ဆောင်ရွက်သည့် လုပ်ငန်းများမှာ	၁။ သွေးဆင်းခြင်းနှင့် သွေးအရောင်အား ကြည့်ခြင်း ၂။ အဖျားတိုင်းခြင်း ရှိ/မရှိစစ်ဆေးခြင်း ၃။ မွေးကင်းစကလေးအား ကြည့်ရှုခြင်း ၄။ သားမြတ်အား စစ်ဆေးခြင်း ၅။ အာဟာရနှင့်ပတ်သက်၍ အကြံပေးဆွေးနွေးခြင်း ၆။ ပဋိသန္ဓေတားခြင်းနှင့်ပတ်သက်၍ အကြံပေး ဆွေးနွေးခြင်း ၇။ မိခင်နို့တိုက်ကျွေးခြင်းနှင့်ပတ်သက်၍ အကြံပေး ဆွေးနွေးခြင်း ၈။ သားအိမဝပျမဝပျကွည့် ၉။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___| |___|
၈၁။	မီးတွင်းကာလ (၁၄)ရက်အတွင်း သင် အကြမ်းမျဉ်း သွားရောက် ကြည့်ရှုသင့်သည့် ပျမ်းမျှ အကြိမ် ပေါင်း	---------- ကြိမ်	|___|___|
၈၂။	မီးတွင်းကာလမိခင်အား ဗျားနာ ခြင်းကြောင့် ပဋိဇီဝဆေး (Antibiotic) ပေးဘူးပါသလား။	၁။ ပေးဘူး ၂။ မပေးဘူး (မေးခွန်း ၈၄ သို့သွားပါ)	|___|
၈၃။	ပေးဘူးပါက ဘာဆေး ပေးလေ့ရှိပါသလဲ။	၁။ Ampicillin ၂။ Gentamycin ၃။ Septrin ၄။ Metronidazole ၅။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___|
၈၄။	ကိုယ်ဝန်ဆောင် မိခင်အား ဆေးထိုးပေးဘူး ပါသလား	၁။ ဆေးထိုးဘူးသည် ၂။ ဆေးမထိုးဘူးပါ (မေးခွန်း ၈၆ သို့သွားပါ)	|___|
၈၅။	ထိုးဘူးပါက ဘာဆေးထိုးပါသလဲ	၁။ အားဆေး (IM) ၂။ အားဆေး (IV) ၃။ ပုလင်းကြီးချိတ်ပေးခြင်း (Drip line) ၄။ သားအိမ်ကျုံ့ဆေး (Oxytocin/ Syntocinon) ၅။ Depo	|___| |___| |___| |___| |___|

		၆။ ATT	|___|
		၇။ Diclofenic injection	|___|
		၈။ အခြား (ဖော်ပြပါ) ----------	|___|
၈၆။	ပဋိသန္ဓေတားဆေး ပေးဘူးပါသလား	၁။ ပေးဘူး ၂။ မပေးဘူး (မေးခွန်း ၈၈ သို့သွားပါ)	|___|
၈၇။	ပဋိသန္ဓေတားဆေးပေးဘူးပါက မည်သို့ ပေးပါသလဲ။ (မဖတ်ပြပါနှင့်။ ဖြေဆိုသည်ကိုသာ လိုက်မှတ်ရန်)	၁။ သောက်ဆေး ၂။ ထိုးဆေး ၃။ Condom ၄။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___|
၈၈။	မွေးဖွားခြင်းအတွက် သင်ရရှိသောငွေကြေး (ပျမ်းမျှ)	---------- ---ကျပ် ပစ္စည်းပေးခြင်း (ဖော်ပြပါ။) ----------	|___|___|___|___|___|___| |___|
အပိုင်း ၅။ မိခင်နှင့်ကလေး စောင့်ရှောက်ခြင်းနှင့်ပတ်သက်၍ ကြုံတွေ့ရသည့် အခက်အခဲ			
၈၉။	AMW kit ရဘူးပါသလား	၁။ ရဘူး ၂။ မရဘူး (မေးခွန်း ၉၁ သို့သွားပါ)	|___|
၉၀။	ရဘူးပါက မည်သည့်ခုနှစ်က ရပါသလဲ။	---------- နှစ်	
၉၁။	သင် ကလေးမီးဖွားရာတွင် အဓိက အသုံးပြု သော ပစ္စည်းများကို ပြောပြပါ။	၁။ Forcep ၂။ Scissiors ၃။ တစ်ခါသုံးမွေးသန့်ထုတ် ၄။ ကလေးပေါင်ချိန်စက် ၅။ လူကြီးပေါင်ချိန်စက် ၆။ သာမိုမီတာ ၇။ ဆပ်ပြာ ၈။ ဆေး (F/S, B1, သံချဆေး) ၉။ သွေးပေါင်ချိန်စက် ၁၀။ နားကြပ် ၁၁။ Betadine ဆေးရည် ၁၂။ အခြား(ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___|

၉၂။	ကုန်သွားသော ပစ္စည်းများအား မည်သို့ ဖြည့်လေ့ရှိပါသလဲ။	၁။ ကိုယ်တိုင်ဝယ် ၂။ ကျန်းမာရေးဌာနမှပေး ၃။ INGO မှပေး ၄။ မကုန်သေးပါ။ မဖြည့်ရသေးပါ။	|___|
၉၃။	မိခင်နှင့် မွေးကင်းစကလေး စောင့်ရှောက်မှု ပေးရာတွင် အဓိက ကြုံတွေ့ရသည့် အခက်အခဲများကို ဖေါ်ပြပါ။ (မဖတ်ပြပါနှင့်။ ဖြေဆိုသည်ကိုသာ လိုက်မှတ်ရန်)	၁။ ငွေကြေးဆိုင်ရာအခက်အခဲ ၂။ လမ်းပန်းဆက်သွယ်ရေးဆိုင်ရာအခက်အခဲ ၃။ ပစ္စည်းဆေးဝါးပြည့်စုံမှုမရှိခြင်း ၄။ ညွှန်ပို့ရာတွင် လူနာမှ လိုက်နာမှုမရှိခြင်း ၅။ MW ဆေးရုံ/ဆေးခန်းနှင့်နီးလွန်းခြင်း ၆။ ကျွမ်းကျင်မှုမရှိခြင်းကြောင့် လူထုမှ ယုံကြည် ကိုးစားမှု မရှိခြင်း ၇။ မိမိကိုယ်ပိုင်အလုပ်နှင့် များပြားသော လုပ်ငန်း များအား တွဲလုပ်နေရခြင်း ၈။ ပြည်သူလူထုဖက်မှ ပူးပေါင်းပါဝင်မှု အားနည်းခြင်း ၉။ လုပ်ငန်းများစွာတွင် ပါဝင်လုပ်ကိုင်ရခြင်း ၁၀။ အခြား(ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___| |___| |___| |___|
၉၄။	သင်၏လုပ်ငန်းအရည်အသွေး တိုးတက်ရန် အတွက် အဓိက လိုအပ်သော အထောက်အပံ့များကို ဖော်ပြပါ။	၁။ ငွေကြေးအထောက်အပံ့လိုခြင်း/ လစာ ရလိုခြင်း ၂။ ဆေးဝါး/ပစ္စည်းလိုခြင်း ၃။ အသိပညာ/ သင်တန်း စဉ်ဆက်မပြတ် လိုခြင်း ၄။ ၄င်းတို့၏ဘဝကိုနားလည်ခြင်းနှင့် မေတ္တာထားခြင်း ၅။ အသိအမှတ်ပြုစေလိုခြင်း (အစိုးရဝန်ထမ်း / Incentive / ပံ့ပိုးကူညီမှုဆိုင်ရာ သင်တန်းဆင်း လက်မှတ်/ အသိအမှတ်ပြု လက်မှတ်/ Certificate/ အင်္ကျီ/ ဦးထုပ်) ၆။ လုပ်ငန်းအထောက်အကူပြုခြင်း၊ ပစ္စည်း ရရှိလိုခြင်း (ဖုန်း၊ ဆိုင်ကယ်၊ မီးစက်၊ ဆေးခန်း) ၇။ ဆေးကုသမှု၊ ဆေးထိုးနိုင်ခွင့်ရခြင်း ၈။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___| |___|

၉၅။	သင် မိခင်နှင့်ကလေး	၁။ ပါဝင်	|___|

	စောင့်ရှောက်မှု လုပ်ငန်းအပြင် အခြား ကျန်းမာရေး လုပ်ငန်းတွင် ပါဝင်ရပါသလား။	၂။ မပါဝင်ပါ (မေးခွန်း ၉၇ သို့သွားပါ)	
၉၆။	ထိုလုပ်ငန်းများမှာ	၁။ ပတ်ဝန်းကျင်သန့်ရှင်းရေး ၂။ အခြား အရေးပေါ်လူနာ ညွှန်းပို့ရာတွင် ကူညီခြင်း (ဥပမာ-မြွေကိုက်) ၃။ အခြားနေမကောင်းလူနာကြည့်ခြင်း ၄။ ကျန်းမာရေးပညာပေးခြင်း ၅။ ကူးစက်ရောဂါလုပ်ငန်းများ ကာကွယ်ကုသရေး ၆။ ကျောင်းကျန်းမာရေးလုပ်ငန်းများ ဆောင်ရွက်ခြင်း ၇။ အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___| |___| |___| |___|
၉၇။	အခြား ကျန်းမာရေးဆိုင်ရာ volunteer လုပ်ခြင်း ရှိ/မရှိ	၁။ ရှိ ၂။ မရှိ (မေးခွန်း မေးမြန်းခြင်းပြီးဆုံးပါပြီ။)	|___|
၉၈။	ရှိပါက ပါဝင်သည့် volunteer လုပ်ငန်း	၁။ PSI RH volunteer ၂။ S/C MCH volunteer ၃။ Community Health Worker ၄။ MSI health worker ၅။ Malaria volunteer (S/C, MMA, MHAA, Government, PSI) ၆။ TB volunteer (MMA, Government, PSI) ၇။ CCM volunteer ၈။ Others (MMCWA, VHC, Pact Myanmar)	|___| |___| |___| |___| |___| |___| |___| |___|

Appendix C3: Guides used for the Inhaled Oxytocin Study (English)

Qualitative Guide (Inhaled Oxytocin study)

Research tools will be translated in local languages and wording adapted as necessary to suit study settings and target groups in collaboration with the in-country research team.

Questionnaires for study participants

Women who have given birth in the last three years

QUESTIONNAIRE – WOMEN WHO HAVE GIVEN BIRTH IN THE LAST THREE YEARS			
Focus group session #:		**Date:**	
Participant ID code:			
Age (years)			
Number of children			
Marital status (tick one) • *Married* • *Widowed* • *Divorced or separated* • *Others ((please specify):*			
Date of last childbirth			
Location of last childbirth (tick one) • *Home* • *Local facility* • *Hospital* • *Other (please specify):*			
People who assisted with last childbirth (tick as appropriate) • *Spouse/partner* • *Mother* • *Mother-in-law* • *Traditional birth attendant/village doctor* • *Community health worker* • *Nurse/midwife* • *Obstetrician* • *Other (specify)*			
Were there any complications during your last childbirth? *If so please specify:*			
Did you receive any medication during/after your last childbirth? *If so please specify if known:*			

TBAs, community-based birth attendants/volunteers, nurses, midwives

QUESTIONNAIRE – BIRTH ATTENDANTS			
Focus group/interview session #:		**Date:**	
Participant ID code:			
Job title:		**Age:**	
PERSONAL DETAILS			
Education • *No formal schooling* • *Primary school* • *Secondary school* • *Higher* • *University*	**Birth attendance training/qualifications** *Title/description of qualification:* *Training institution/provider:* *Duration of training: Year completed:*		
Birth attendance experience *Number of years practicing:* *Number of births attended (tick approximation)* • *<20* • *20-100* • *>100*	**Postpartum care responsibilities** (tick as applicable) • *Administration of a uterotonic* • *Controlled cord traction* • *Uterine massage* • *Other:*		
FOLLOWING SECTION FOR FACILITY-BASED BIRTH ATTENDANTS ONLY			
FACILITY DETAILS			
Name of Facility			
Facility level/classification	Sub-centre		
	Health Centre	• *Urban* • *Rural*	
	Hospital	• *Station* • *Township* • *District* • *Specialist*	
	Other:		
Region/town/village		**Population served**	
Number of births	Per month:	Per year:	
Healthcare providers employed *(Specify number)*		Community health volunteer/auxiliary midwife	
		Nurse/midwife	
		Obstetrician	
		Other:	
MANAGEMENT OF LABOUR AND USE OF OXYTOCIN AT YOUR FACILITY			
Is active management of third stage of labour practiced at every birth? No Yes • *Uterine massage* • *Controlled cord traction* • *Administration of a uterotonic* **By who?**			
Is oxytocin used for PPH prevention? No Yes *Dose:* *Administration route:* *Timing of administration:* **By who?**			

Is oxytocin given at every delivery to prevent PPH? • Always (>95%) • Often (70-95%) • Sometimes (30-70%) • Infrequently (<30%)	**How often has oxytocin been used for prevention in the last month/year?**
Is oxytocin used for PPH treatment? No Yes *Dose:* *Administration route:* *By who:*	**Is oxytocin used for other purposes?** No Yes *Purpose:* *Dose:* *Administration route:* *By who:*
Are any other uterotonics used for prevention/treatment of PPH? Misoprostol Ergometrine Syntometrine Other:	
OXYTOCIN AVAILABILITY AT YOUR FACILITY	
How often is oxytocin available? • Always (>95%) • Often (70-95%) • Sometimes (30-70%) • Infrequently (<30%) **Currently available?** • No • Yes→**Can this be shown?**	**How often are the required needles/syringes/swabs available to administer oxytocin?** • Always (>95%) • Often (70-95%) • Sometimes (30-70%) • Infrequently (<30%) **Currently available?** • No • Yes
COLD STORAGE AVAILABILITY AT YOUR FACILITY	
Is cold storage available? • No • Yes	**Is oxytocin stored in the cold storage?** • No • Yes
Are the cold storage facilities always functional? • Always (>95%) • Often (70-95%) • Sometimes (30-70%) • Infrequently (<30%)	**Is temperature of cold storage facility monitored?** • No • Yes→**Can this be shown?**
SUPPLY OF OXYTOCIN AT YOUR FACILITY	
Supplier/distributer:	**Manufacturer:**
Is oxytocin supplied under cold conditions? • Yes • Sometimes • No • Don't know	**How often is it supplied?** • Weekly • Monthly • Quarterly • Other:
PROVIDERS WHO ATTEND BIRTHS AT YOUR FACILITY	
Which healthcare providers attend births at this facility?	
Community health worker • Always • Sometimes • Never	Midwife/nurse • Always • Sometimes • Never
Obstetrician • Always • Sometimes • Never	Other: • Always • Sometimes • Never

Discussion guides for focus group discussions

Women who gave birth within the last three years

Theme, questions and probes

Current practices around childbirth

Can you tell me about your last childbirth?

- *Where did you give birth?*
- *What were the reasons for giving birth there?*
- *Who was present, and what role did they play?*
- *Who helped you with the birth?*
- *Who made the decisions about what happened during childbirth?*
- *What happened after the baby was born?*

What can you tell me about medications that are used during or after childbirth?

- *Are you aware of any medications used at childbirth? Which one(s)?*
- *Would you want medication used at childbirth? Why/why not?*
- *How are medications used at childbirth obtained (provided by birth attendant, self-purchase, other)?*
- *How much do they cost (if known)?*
- *Who decides what medications are used?*

Perceptions and cultural beliefs around birth/postpartum period/bleeding

Can you tell me about your views toward childbirth?

- *Are there risks involved?*
- *In general do women need help with birth?*
- *What do you think of the time immediately after birth?*
- *In general do women need help during this time?*

Can you tell me what you know about bleeding after childbirth?

- *Does bleeding occur after childbirth?*
- *Is it a problem or dangerous?*
- *Is there anything you could do to prevent too much bleeding before it happens?*
- *How do you know if there is too much bleeding?*
- *What would you do if there were too much bleeding?*
- *Would you seek help? How? From where?*
- *Are you aware of medications used to prevent too much bleeding? Which one(s)?*
- *Would you want the doctor/nurse to give you a medication after birth to prevent too much bleeding? Why/why not?*

Perspectives towards an inhaled medication product to prevent PPH

Can you tell me what you think about inhaled medications?

- *General thoughts?*
- *Is inhalation used for other medicines? Which ones? To treat what?*
- *Have you used inhalers before? Which ones?*
- *Would you want to use an inhaler instead of an injection/tablet/suppository? Why/why not?*
- *Do you think they are as effective as injections/tablets/suppositories? Why/why not?*

At this point the concept of inhaled oxytocin will be explained and a device will be shown as an example

Can you tell me what you think about an inhaled medication to prevent too much bleeding after

childbirth?

- *Would you want the doctor/nurse to give you an inhaler instead of an injection/tablet/suppository after you give birth? Why/why not?*
- *Do you think you would be able to inhale something immediately after giving birth?*
- *What would limit or improve your willingness to use an inhaler? Recommendation from friend/family/nurse/doctor? Taste/texture/smell?*

Perspectives towards inhaled medication use outside facilities

Can you tell me what you think about using an inhaled medication to prevent bleeding after childbirth outside of a health facility?

- *Would you want to use an inhaler if you were giving birth outside of a facility? Why/why not?*
- *Do you think you would know how to use it?*
- *Who do you think could/should help you use it?*
- *How and when could you be given the device to make sure you had it with you when it came time to give birth?*
- *Who should/could show you how to use it in case you are alone when you do give birth?*

TBAs and community-based birth attendants/health volunteers

Theme, questions and probes

Current practices around childbirth

Can you tell me about how childbirth and the postpartum period are managed?

- *Beside yourself, who else attends the birth?*
- *What is your role/responsibility?*
- *Do you use medication during labour or after the baby is born? Which ones/what for?*
- *When would you refer a woman to a facility?*
- *How would you refer her?*

Perceptions and cultural beliefs around birth/postpartum/bleeding

Can you tell me about your views toward childbirth?

- *Are complications common?*
- *Do women need help with birth?*
- *What do people think of the time immediately after birth?*
- *Do women need help during this time?*

Can you tell me what you know about bleeding after childbirth?

- *Does bleeding occur after childbirth?*
- *Is it a problem or dangerous?*
- *Is there anything you do to prevent too much bleeding?*
- *How do you know if there is too much bleeding? How is blood loss measured?*
- *What would you do if there were too much bleeding?*
- *Are there medications used to prevent too much bleeding? Which one(s)*

Perspectives towards an inhaled medication to prevent PPH

Can you tell me what you think about inhaled medications?

- *Is inhalation used for other medicines? Which ones?/To treat what?*
- *Have you personally used an inhaler before? Which ones?*
- *Have you helped someone else to use an inhaler? Which ones?*
- *Would you want use an inhaler for a mother instead of an injection/tablet/suppository? Why/why not?*
- *Do you think they are as effective as injections/tablets/suppositories? Why/why not?*

At this point the concept of inhaled oxytocin will be explained and a device will be shown as an example

Can you tell me what you think about inhaled medications to prevent bleeding after childbirth?

- *Would you use an inhaler on a patient to prevent too much bleeding after birth? Why/why not?*
- *What would improve or limit your willingness to use this product?*

Questions for interviews

Facility-based nurses/midwives

Theme, questions and probes

Current practices around childbirth

Can you tell me about how childbirth and the postpartum period are managed at this facility?

- *Who attends births?*
- *What is your role/responsibility?*
- *How is a normal/uncomplicated childbirth managed? Who is the primary carer?*
- *Is anything done to prevent PPH? What? By whom?*
- *Is an uterotonic administered? Which one? How and when is it used (dose and timing of administration)?*
- *What governs choice of uterotonic used?*
- *When/why would you refer a woman to different facility?*

Oxytocin storage

Can you tell me about the storage of oxytocin at this facility?

- *From where do you obtain your current supplies?*
- *How/where is it stored?*
- *If not refrigerated, why not?*
- *Any problems associated with storage?*
- *What would make storage of oxytocin easier/more practical?*

How/where are other medications used at childbirth stored?

What if you had an oxytocin product that didn't need to be refrigerated?

- *Would this be advantageous or disadvantageous or neither? Why?*

Oxytocin use

Can you tell me about the use of oxytocin at this facility?

- *Is it used for augmentation of labour/PPH prevention/PPH treatment?*
- *Is it always effective in preventing PPH? Do other uterotonics need to be used as well/ instead?*
- *Is it practical to use? Any problems/difficulties associated with its use?*
- *What would make use of oxytocin easier/more practical?*

Perspectives towards an inhaled oxytocin to prevent PPH

Can you tell me what you think about inhaled medications?

- *Are they used for anything at this facility? If so, what are they used for?*
- *Are they as effective as injections? Why/why not?*

At this point the concept of inhaled oxytocin will be explained and a device will be shown as an example

Can you tell me what you think about inhaled oxytocin to prevent PPH?

- *Would it be practical/useful to deliver oxytocin via an inhaler after childbirth instead of an injection? More difficult/less difficult? Why?*
- *Advantages and disadvantages of inhaled oxytocin compared to other uterotonics (including oxytocin injection)? What is the biggest disadvantage? What is the biggest advantage?*
- *General thoughts?*
- *Would you use it if it were available?*
- *What would limit or improve your willingness to use it? Recommendation from colleagues/superiors/ministry of health?*

Perspectives towards use of inhaled oxytocin at out-of-facility deliveries

Can you tell me what you think about inhaled oxytocin being used outside of health facilities by family members, TBAs or women themselves?

- *Would this be suitable for use in home births?*
- *Who should administer (mother/family member/TBA)?*
- *Will the device be used properly?*
- *Will it be used at the correct time?*
- *How should the product and training be provided?*

Obstetricians

Theme and questions/probes

Background information:

Please outline obstetrics training and qualifications

- *Description of qualification?*
- *Institution/training*
- *Year completed?*

Please outline obstetrics experience

- *Number of years practicing?*
- *Approximate number of deliveries per year?*

Please outline the types of facilities you have practiced at

- *Public/private?*
- *Hospital/lower level clinic?*
- *Urban/rural?*

Current practices around childbirth and PPH

Can you tell me about how childbirth and the postpartum period managed in your facility?

- *Is anything done to prevent PPH? What? By who?*
- *Is a uterotonic administered? Which one? How and when is it used (dose and timing of administration)?*
- *What governs choice of uterotonic used?*
- *When/why would you refer a woman to different facility?*

Oxytocin storage

Can you tell me about the storage of oxytocin at this facility?

- *From where do you obtain your current supplies?*
- *How/where is it stored?*
- *If not refrigerated, why not?*
- *Any problems associated with storage?*
- *What would make storage of oxytocin easier/more practical?*

How/where are other medications used at childbirth stored?

What if you had an oxytocin product that didn't need to be refrigerated?

- *Would this be advantageous or disadvantageous or neither? Why?*

Oxytocin use

Can you tell me about the use of oxytocin at this facility?

- *Is it used for augmentation of labour/PPH prevention/PPH treatment?*
- *Is it always effective in preventing PPH? Do other uterotonics need to be used as well/ instead?*
- *Is it practical to use? Any problems/difficulties associated with its use?*
- *What would make use of oxytocin easier/more practical?*

Perspectives towards an inhaled oxytocin to prevent PPH

At this point the concept of inhaled oxytocin will be explained and a device will be shown as an example

Can you tell me what you think about inhaled oxytocin to prevent PPH?

- *Would it be practical/useful to deliver oxytocin via an inhaler instead of an injection? More difficult/less difficult? Why?*
- *Advantages and disadvantages of inhaled oxytocin compared to other uterotonics (including oxytocin injection)? What is the biggest disadvantage? What is the biggest advantage?*
- *General thoughts?*
- *Would you use it if it were available?*

- *What would limit or improve your willingness to use it? Recommendation from colleagues/ministry of health?*

Perspectives towards use of inhaled oxytocin out-of-facilities

Can you tell me what you think about inhaled oxytocin being used outside of health facilities by family members, TBAs or women themselves?

- *Would this be suitable for use in home births?*
- *Who should administer (mother/family member/TBA)?*
- *Will the device be used properly?*
- *Will it be used at the correct time?*
- *How should the product and training be provided?*

Key informants

Interviews will cover some subset of this information depending on the position and knowledge of the interviewee.

Theme and questions/probes
Background information Please provide details of your current position • *Job title?* • *Organisation?* • *Department (if applicable)?* • *Overview of role/responsibilities?* • *Duration for which position has been held?*
Perspectives towards an inhaled oxytocin product to prevent PPH **At this point the concept of inhaled oxytocin will be explained and a device will be shown as an example** Can you tell me what you think about an inhaled medication to prevent PPH in a health facility? • *General thoughts?* • *How would it compare with other available routes of medication administration (injections, tablets…)?* • *Perceived advantages and disadvantages of inhaled oxytocin?* • *What is the biggest disadvantage? What is the biggest advantage?* • *How does it/could it align with existing health practices and programs?* • *Would you actively support/encourage its introduction in facilities?* • *What would limit or improve acceptance/endorsement of this?*
Perspectives towards use of inhaled oxytocin out-of-facilities Can you tell me what you think about an inhaled medication to prevent PPH in births that occur outside a health facility? • *Would this be suitable for use in home births?* • *If so, who should be responsible for administration?* • *How should/could the product and training be provided?* • *Would you actively support/encourage its introduction for use at home births?* • *What would limit or improve acceptance/endorsement of this?*

Current usage of oxytocin

Can you tell me about how oxytocin is used and supplied to health facilities/your facility?

- *Where do you get it from?*
- *Is oxytocin always available when ordered?*
- *How often are deliveries received?*
- *Is oxytocin always refrigerated when delivered?*

Can you tell me about the current storage of oxytocin?

- *How common are stock-outs in your facility/shop?*
- *How/where is it stored?*
- *If not refrigerated why not?*
- *How are temperature insensitive products stored?*
- *Any problems associated with storage?*
- *What would make storage of oxytocin easier/more practical?*

What if you had an oxytocin product that didn't need to be refrigerated?

- *Would this be advantageous/disadvantageous/neither? Why?*

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျုံ့ဆေးအား ရှုဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
ဦးတည်အုပ်စုဆွေးနွေးခြင်း (အသက်၃နှစ်အောက်ကလေးရှိ မိခင်များ)

အုပ်စုအမှတ်စဉ် |___|___| နေ့စွဲ:
ဆွေးနွေးသူ နံပါတ်: |___|___|

၁။	အသက် (ပြည့်ပြီးအသက်) (နှစ်)	|___|___|
၂။	စုစုပေါင်းကလေးအရေအတွက်	|___|___|
၃။	အိမ်ထောင်ရေးအခြေအနေ(တစ်ခုအမှန်ခြစ်ရန်)း (၁) အိမ်ထောင်ရှိ (၃) မုဆိုးမ (၂) အိမ်ထောင်ကွဲ (၄) အခြား (ဖော်ပြပါ) ----------	|___|
၄။	အငယ်ဆုံးကလေးအသက် (စုစုပေါင်း ၁)	|___|___|
၅။	အငယ်ဆုံးကလေးမွေးဖွားရာနေရာ (တစ်ခုအမှန်ခြစ်ရန်) (၁) နေအိမ် (၃) ဆေးရုံ (၂) နီးစပ်ရာကျန်းမာရေးဌာန (၄) အခြား (ဖော်ပြပါ)----------	|___|
၆။	အငယ်ဆုံးကလေးမွေးဖွားစဉ် အဓိကမွေးဖွားပေးသူ (တစ်ခုအမှန်ခြစ်ရန်) (၁) အမေ (၅) သူနာပြု/သားဖွားဆရာမ (၂) ယောကျ်ားမ (၆) သားဖွားဆရာဝန် (၃) အရပ်လက်သည် (၇) အခြား (ဖော်ပြပါ)---------- (၄) ကျန်းမာရေးလုပ်သား	|___|
၇။	အငယ်ဆုံးကလေးမွေးဖွားစဉ် အန္တရာယ် ရှိသည့် လက္ခဏာတစ်ခုခု ကြုံတွေ့ခဲ့ဖူး ပါသလား။ (၁) ကြုံတွေ့ဘူး (၂) မ ကြုံတွေ့ဘူးပါ။ ကြုံတွေ့လျှင်ဖော်ပြပါ: ----------	|___|
၈။	အငယ်ဆုံးကလေးမွေးဖွားစဉ် နှင့် မီးတွင်းကာလများတွင် ဆေးဝါးများသုံးစွဲခဲ့ပါသလား။ (၁) သုံးစွဲဘူး (၂) မသုံးစွဲဘူးပါ။ သုံးစွဲလျှင်ဖော်ပြပါ: ----------	|___|

APPENDIX C

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျုံ့ဆေးအား ရှုဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
အရပ်လက်သည်/ အရန်သားဖွားဆရာမ

အုပ်စုအမှတ်စဉ်|___|___| နေ့စွဲ:
ဆွေးနွေးသူ နံပါတ်:|___|___|

၁။	အလုပ်အကိုင် : ----------	
၂။	အသက်:|___|___|	|___|___|
၃။	ပညာအရည်အချင်း (၁) စာမတတ်/ကျောင်းမနေဘူးပါ (၂) မူလတန်း (သူငယ်တန်းမှ ၄တန်းအထိ) (၃) အလယ်တန်း (၄တန်းအောင်မှ ၈တန်းအထိ) (၄) အထက်တန်း (၈တန်းအောင်မှ ၁၀တန်းအထိ) (၅) တက္ကသိုလ်/ကောလိပ် (၆) ဘွဲ့ရ	|___|
၄။	ကလေးမွေးဖွားခြင်းနှင့် ပတ်သက်သည့် သင်တန်း ရရှိခဲ့ခြင်း ရှိ/မရှိ။ (၁) ရှိ (၂) မရှိ သင်တန်းအမည် : ---------- သင်တန်းကျောင်းအမည်: ---------- သင်တန်းကာလ: ---------- ပြီးဆုံးအောင်တက်ရောက်ခဲ့သည့် နှစ်: ----------	|___|
၅။	မီးဖွားခြင်းဆိုင်ရာ အတွေ့အကြုံ လုပ်ကိုင်ခဲ့သည့် နှစ်အရေအတွက်	|___|___|
၆။	တစ်နှစ်အတွင်း ပျမ်းမျှမွေးဖွားပေးခဲ့သည့် ကလေးအရေအတွက် (မှတ်မိသလောက် အမှန်ခြစ်ရန်) (၁) ၂၀ အောက် (၂) ၂၀ မှ ၁၀၀ အထိ (၃) ၁၀၀ အထက်	|___|
၇။	မီးတွင်းကာလ လုပ်ဆောင်ပေးမှုများ (ရှိလျှင် အမှန်ခြစ်ပါ) (၁) သားအိမ်ကျုံ့ဆေးပေးခြင်း (၂) ချက်ကြိုး စနစ်တကျဆွဲပြီး အချင်းချခြင်း (၃) သားအိမ်နှိပ်နယ်ခြင်း (၄) အခြား (ဖော်ပြပါ) ----------	 |___
___
___
___	

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျုံ့ဆေးအား ရှုဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
သားဖွားဆရာမ/ သူနာပြု

အုပ်စုအမှတ်စဉ်|___|___| နေ့စွဲ:
ဆွေးနွေးသူ နံပါတ်: |___|___|

၁။	အလုပ်အကိုင် : ----------	
၂။	အသက်:|___|___|	|___|___|
၃။	ပညာအရည်အချင်း (၁) မူလတန်း (သူငယ်တန်းမှ ၄တန်းအထိ) (၂) အလယ်တန်း (၄တန်းအောင်မှ ၈တန်းအထိ) (၃) အထက်တန်း (၈တန်းအောင်မှ ၁၀တန်းအထိ) (၄) တက္ကသိုလ်/ကောလိပ် (၅) ဘွဲ့ရ	|___|
၄။	ကလေးမွေးဖွားခြင်းနှင့် ပတ်သက်သည့် သင်တန်း ရရှိခဲ့ခြင်း ရှိ/မရှိ။ (၁) ရှိ (၂) မရှိ သင်တန်းအမည် : ---------- သင်တန်းကျောင်းအမည်: ---------- သင်တန်းကာလ: ---------- ပြီးဆုံးအောင်တက်ရောက်ခဲ့သည့် နှစ်: ----------	|___|
၅။	မီးဖွားခြင်းဆိုင်ရာ အတွေ့အကြုံ လုပ်ကိုင်ခဲ့သည့် နှစ်အရေအတွက်:	|___|___|
၆။	တစ်နှစ်အတွင်း ပျမ်းမျှမွေးဖွားပေးခဲ့သည့် ကလေးအရေအတွက် (မှတ်မိသလောက် အမှန်ခြစ်ရန်) (၁) ၂၀ အောက် (၂) ၂၀ မှ ၁၀၀ အထိ (၃) ၁၀၀ အထက်	|___|
၇။	မီးတွင်းကာလ လုပ်ဆောင်ပေးမှုများ (ရှိလျှင် အမှန်ခြစ်ပါ) (၁) သားအိမ်ကျုံ့ဆေးပေးခြင်း (၂) ချက်ကြိုး စနစ်တကျဆွဲပြီး အချင်းချခြင်း (၃) သားအိမ်နှိပ်နယ်ခြင်း (၄) အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___|
၈။	ဆေးရုံ/ကျေးလက်ကျန်းမာရေးဌာနအမည် ----------	|___|
၉။	ကျန်းမာရေးဌာနအမျိုးအစား (၁) ကျေးလက်ကျန်းမာရေးဌာနခွဲ (၂) ကျေးလက်ကျန်းမာရေးဌာန (၃) တိုက်နယ်ဆေးရုံ (၄) မြို့နယ်ဆေးရုံ (၅) မြို့မ မိခင်ကလေး ကျန်းမာရေးဌာန (၆) ခရိုင်ဆေးရုံ (၇) အခြား (ဖော်ပြပါ) ----------	|___|
၁၀။	တာဝန်ကျရာ ကျန်းမာရေးဌာနတွင် စောင့်ရှောက်မှုပေးရသော တစ်လပျမ်းမျှလူနာ အရေအတွက် ---------- ယောက်	|___|___|___|
၁၁။	တာဝန်ကျရာ ကျန်းမာရေးဌာနတွင် မွေးဖွားပေးရသော မွေးလူနာ အရေအတွက်	လစဉ် ---------- နှစ်စဉ် ---------- |___|___|___| |___|___|___|

	ဆေးရုံ ဆေးခန်းတွင် သားဖွားမှုစောင့်ရှောက်ပေးခြင်း နှင့် အောက်ဆီတိုစင်ဆေး သုံးစွဲခြင်း	
၁၂။	မွေးဖွားခြင်း တတိယအဆင့်တွင် စောင့်ရှောက်မှုပေးခြင်း ပြုလုပ်ပါသလား (၁) လုပ်ပါသည် (၂) မလုပ်ပါ	|___|
၁၃။	ပြုလုပ်ပါက (၁) သားအိမ်ကျုံ့ဆေးပေးခြင်း (၂) ချက်ကြိုး စနစ်တကျဆွဲပြီး အချင်းချခြင်း (၃) သားအိမ်နှိပ်နယ်ခြင်း (၄) အခြား (ဖော်ပြပါ) ----------	|___| |___| |___| |___|
၁၄။	မီးတွင်းကာလမှာသွေးသွန်ခြင်းကို ကာကွယ်ရန် အောက်ဆီတိုစင်ဆေးကို သုံးပါသလား? (၁) သုံးပါသည် (၂) မသုံးပါ သုံးပါက ပမာဏ: ဆေးပေးသော လမ်းကြောင်း : ဆေးပေးသော အချိန်အပိုင်းအခြား :	|___| |___| |___| |___|
၁၅။	မီးတွင်းကာလမှာသွေးသွန်ခြင်းကို ကာကွယ်ရန် အောက်ဆီတိုစင်ဆေးကို မွေးဖွားမှုတိုင်းတွင် သုံးပါသလား? (၁) အမြဲသုံး (၉၅% ထက်ပို) (၂) အမြဲနီးပါးသုံး (၇၀ မှ ၉၅% အထိ) (၃) တစ်ခါတစ်ရံသုံး (၃၀ မှ ၇၀% အထိ) (၄) ခဏခဏမသုံး (၃၀% အောက်)	|___|
၁၆။	မီးတွင်းကာလမှာသွေးသွန်ခြင်းကို ကုသရန် အောက်ဆီတိုစင်ဆေးကို သုံးပါသလား? (၁) သုံးပါသည် (၂) မသုံးပါ သုံးပါက ပမာဏ: ဆေးပေးသော လမ်းကြောင်း : ဆေးပေးသော အချိန်အပိုင်းအခြား :	|___| |___| |___| |___|
၁၇။	အောက်ဆီတိုစင်ဆေးကို အခြားရည်ရွယ်ချက်များ အတွက် သုံးပါသလား? (၁) သုံးပါသည် (၂) မသုံးပါ သုံးပါက ရည်ရွယ်ချက်: ပမာဏ: ဆေးပေးသော လမ်းကြောင်း :	|___| |___| |___| |___| |___|
၁၈။	မီးတွင်းကာလမှာသွေးသွန်ခြင်းကို ကာကွယ်ရန်/ ကုသရန် အခြား သားအိမ်အားကောင်းဆေးများသုံးပါသလား? (၁) Misoprostol (၂) Ergometrine (၃) Syntometrine (၄) အခြား : (ဖော်ပြပါ) ----------	 |___| |___| |___| |___|

	ဆေးရုံ ဆေးခန်းတွင် အောက်ဆီတိုစင်ရရှိနိုင်မှု	
၁၉။	အောက်ဆီတိုစင်ပုံမှန်ရရှိမှု အခြေအနေ (၁) အမြဲရ (၉၅% ထက်ပို) (၂) အမြဲနီးပါးရ (၇၀ မှ ၉၅% အထိ) (၃) တခါတရံရ (၃၀ မှ ၇၀% အထိ) (၄) ခဏခဏမရ (၃၀% အောက်)	|___|
၂၀။	လက်ရှိ အောက်ဆီတိုစင်ဆေး ရှိပါသလား? (၁) ရှိပါသည် (၂)မရှိပါ	|___|
၂၁။	အောက်ဆီတိုစင် ထိုးရန် ဆေးထိုးအပ်၊ ဆေးထိုးပြွန်၊ ဂွမ်း ရရှိမှု အခြေအနေ (၁) အမြဲရ (၉၅% ထက်ပို) (၂) အမြဲနီးပါးရ (၇၀ မှ ၉၅% အထိ) (၃) တခါတရံရ (၃၀ မှ ၇၀% အထိ) (၄) ခဏခဏမရ (၃၀% အောက်)	|___|
၂၂။	လက်ရှိ ဆေးထိုးအပ်၊ ဆေးထိုးပြွန်၊ ဂွမ်း ရှိပါသလား? (၁)ရှိပါသည် (၂)မရှိပါ	|___|
	ဆေးရုံ ဆေးခန်းတွင် အအေးခန်းထားရှိမှု	
၂၃။	လက်ရှိကျန်းမာရေးဌာနတွင် အအေးခန်းရှိပါသလား? (၁)ရှိပါသည် (၂)မရှိပါ	|___|
၂၄။	အအေးခန်းကိရိယာများ အလုပ်လုပ်ပါသလား? (၁)လုပ်ပါသည် (၂) မလုပ်ပါ	|___|
၂၅။	အအေးခန်း၏ အပူချိန်ကိုထိန်းညှိခြင်းရှိပါသလား? (၁)ရှိပါသည် (၂)မရှိပါ	|___|
၂၆။	အောက်ဆီတိုစင် ဆေးကို အအေးခန်းတွင် သိမ်းပါသလား? (၁) သိမ်းပါသည် (၂) မသိမ်းပါ	|___|
	ဆေးရုံ ဆေးခန်းတွင် အောက်ဆီတိုစင် ထောက်ပံ့ပေးမှု	
၂၇။	ထောက်ပံ့သည့်အဖွဲ့အစည်း/ဌာန ----------	
၂၈။	အောက်ဆီတိုစင် ဆေးကိုပေးပို့ရာတွင် အအေးဗူးနှင့် ပို့ပေးပါသလား? (၁) အမြဲပို့ပါသည် (၂) တစ်ခါတစ်ရံပို့ပါသည် (၃) မပို့ပါ (၄) မသိပါ	|___|
	ကျန်းမာရေးဝန်ထမ်းများမှ ကလေးမွေးပေးခြင်း	
၂၉။	ဒီဆေးရုံ/ဆေးခန်းတွင် မည်သည့် ကျန်းမာရေးဝန်ထမ်းက ကလေးမွေးဖွားပေး ပါသလဲ?	

	အမြဲ	တစ်ခါတစ်ရံ	မမွေးပေးပါ	
လူထုအခြေပြုကျန်းမာရေးလုပ်သား (အရန်သားဖွား)	၁	၂	၃	|___|
သူနာပြု/သားဖွားဆရာမ	၁	၂	၃	|___|
ဆရာဝန်	၁	၂	၃	|___|
အခြား (ဖော်ပြပါ) ----------	၁	၂	၃	|___|

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျုံ့ဆေးအား ရွှေဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
ဦးတည်အုပ်စုဆွေးနွေးခြင်းလမ်းညွှန် (အသက်၃၅နှစ်အောက်ကလေးရှိ မိခင်များ)

၁။ကလေးမွေးဖွားခြင်းနှင့်ပတ်သက်သည့် လက်ရှိအလေ့အထ

နောက်ဆုံးကလေးမွေးဖွားမှုနဲ့ပတ်သက်ပြီး ပြောပြနိုင်မလား?

- ဘယ်မှာ မွေးလဲ? (အိမ် သို့မဟုတ် ဆေးရုံ) ဘာကြောင့်လဲ
- ဘယ်သူကမွေးပေးခဲ့သလဲ? ဘယ်သူကကူညီခဲ့လဲ?
- အခက်အခဲကြုံတွေ့ရခြင်းကို ဘယ်သူကဆုံးဖြတ်ပေးသလဲ?
- မွေးဖွားပြီးပြီးချင်းဘာအခက်အခဲရှိသလဲ။

ကလေးမွေးစဉ် နှင့် မွေးဖွားပြီး သုံးစွဲသောဆေးများနဲ့ ပတ်သက်ပြီး ပြောပြနိုင်မလား?

- ကလေးမွေးစဉ် ဆေးတစ်စုံတရာသုံးခြင်းကို သတိထားမိပါသလား? ဘာဆေးတွေများ သုံးပါသလဲ?
- ကလေးမွေးဖွားရာတွင် ဆေးဝါးသုံးစွဲလေ့ရှိပါသလား။ (သုံးချင်/မသုံးချင်/ ဘာကြောင့်လဲ)
- ကလေးမွေးစဉ် သုံးသောဆေးများဘယ်လိုရရှိပါသလဲ (လက်သည်ကပေးသည်, ကိုယ်တိုင်ဝယ်သည်, အခြား)?
- ဘယ်လောက်ပေးရသလဲ
- ဆေးများသုံးရန် ဘယ်သူကဆုံးဖြတ်ခဲ့သလဲ?

၂။ ကလေးမွေးစဉ် နှင့် မီးတွင်း သွေးသွန်ခြင်းဆိုင်ရာ သဘောထားခံယူချက်များ နှင့် ရှေးထုံးဆိုင်ရာ အယူအဆများ

ကလေးမွေးတာနဲ့ပတ်သက်တဲ့ သင့်ရဲ့ အမြင်လေးကိုပြောပြနိုင်မလား?

- ကလေးမွေးစဉ်တွင် အန္တရာယ် ရှိနိုင်ပါသလား?
- ယေဘူယျအားဖြင့် အမျိုးသမီးများသည် ကလေးမွေးစဉ် အကူအညီလိုပါသလား?
- ကလေးမွေးပြီးပြီးချင်း ဘယ်လိုအန္တရာယ်တွေ ကျရောက်နိုင်သလဲ။

ကလေးမွေးပြီး မီးတွင်းမှာ သွေးသွန်တာနဲ့ပတ်သက်တဲ့ သင့်ရဲ့ အမြင်လေးကိုပြောပြနိုင်မလား?

- ကလေးမွေးပြီးလျှင် သွေးသွန်တတ်ပါသလား?
- အဲဒါပြဿနာရှိလား/အန္တရာယ်ရှိလား?
- သွေးထွက်လွန်ခြင်း ကာကွယ်ရန် ဘာတွေ လုပ်လေ့ရှိသလဲ။
- သွေးထွက်လွန်နေပြီဆိုတာ သင်ဘယ်လိုသိနိုင်မလဲ/သင်ဘာလုပ်မလဲ?
- အကူအညီတောင်းမလား?ဘယ်လိုတောင်းမလဲ? ဘယ်ကတောင်းမလဲ?
- သွေးထွက်လွန်တာကာကွယ်ရန် ဆေးများရှိသည်ဆိုတာ သိပါသလား?ဘယ်ဆေးလဲ?
- ကလေးမွေးပြီး သွေးထွက်လွန်တာကာကွယ်ရန်အတွက် ဆရာဝန်၊ ဆရာမများက ဆေးပေးတာကို လိုချင်ပါသလား? ဘာကြောင့်ပေးစေချင်လဲ/ဘာကြောင့်မပေးစေချင်လဲ?

၃။ မီးတွင်းမှာ သွေးသွန်ခြင်းကာကွယ်ရန် သားအိမ်ကျုံ့ဆေးအား ရွှေဆေးအသွင်ဖြင့်ပေးခြင်းအပေါ် သဘောထားခံယူချက်များ

အသက်ရှူလမ်းကြောင်းမှ ရှူသွင်းရသော ဆေးများအပေါ်ဘယ်လိုထင်လဲ ပြောပြပါလား? (ရှူခြင်းနှင့် ထိုးခြင်းကွာခြားချက်)

- ရှူဆေးများကို ဘယ်လိုရောဂါများအတွက် အသုံးပြုလေ့ရှိပါသလဲ။ ဘာဆေးတွေလဲ? ဘာကိုကုဖို့အတွက်လဲ?
- ရှူဆေးများကို အရင်ကသုံးဘူးပါသလား? ဘယ်ဆေးသုံးဘူးပါသလဲ?
- ရှူဆေးက ထိုးဆေး/သောက်ဆေးတွေလို အကျိုးရှိမယ်ထင်သလား။ ဘာကြောင့်လဲ။
- အကယ်၍ ရှူဆေးကို ကလေးမီးဖွားပြီးပြီးချင်း သွေးသွန်ခြင်းကို ကာကွယ်ဖို့အတွက် အသုံးပြုမယ်ဆိုရင် ရမယ် ထင်သလား။

ဒီနေရာတွင် အောက်ဆီတိုစင် ရှူသွင်းမှုသဘောကို ရှင်းပြပြီး ကိရိယာကိုလည်း ပြသပါမည်

- ကလေးမွေးပြီးပြီးချင်း တစုံတခုကိုရှူသွင်းနိုင်မယ်လို့ သင့်ကိုယ်သင်ထင်ပါသလား?
- အကယ်၍ ရှူဆေးကို သုံးရမယ်ဆိုရင် ဘာတွေလိုမယ်ထင်လဲ။ (ဆေးပစ္စည်းကိရိယာ/ အသုံးပြုပုံ)

၄။ ဆေးရုံ ဆေးခန်းမရှိသောနေရာများတွင် သားအိမ်ကျုံ့ဆေးအား ရွှေဆေးအသွင်ဖြင့်ပေးခြင်းအပေါ် သဘောထားခံယူချက်များ

ကလေးမီးဖွားပြီး မီးတွင်းတွင် သွေးလွန်ခြင်းကို ကာကွယ်ရန် ရပ်ရွာထဲတွင် ရွှေဆေးသုံးစွဲမည်ဆိုပါက ဖြစ်နိုင်ခြေ ရှိ/မရှိ။

- ဆေးရုံ ဆေးခန်းမရှိသောနေရာများတွင် သုံးစွဲရန် သင့်/မသင့်။
- သုံးစွဲရန် လိုအပ်သည့်အရာများ (ဆေး/ လူ/ အသိပညာ)
- မွေးဖွားချိန်တွင် ထိုကိရိယာကို သင်အသုံးပြုနိုင်ရန် ဘယ်လိုပေးရမလဲ/ ဘယ်တော့ပေးရမလဲ/ ဘယ်သူကပေးရမလဲ

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျို့ဆေးအား ရှုဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
ဦးတည်အုပ်စုဆွေးနွေးခြင်းလမ်းညွှန် (အရပ်လက်သည်များနှင့် အရန်သားဖွားဆရာမများ)

၁။ကလေးမွေးဖွားခြင်းနှင့်ပတ်သက်သည့် လက်ရှိအလေ့အထ

မီးဖွားခြင်းနှင့် မီးတွင်းကာလများကို ဘယ်လိုဆောင်ရွက်ပေးလဲ ပြောပြလို့ရမလား?

- သင့်အပြင် တခြားမည်သူက ကလေးမွေးဖွားပေးပါသလဲ?
- သင်၏ တာဝန်ဝတ္တရားများကဘာလဲ?
- ကလေးမွေးစဉ် (သို့မဟုတ်) မီးတွင်းကာလတွင် ဆေးပေးလေ့ရှိပါသလား? ဘာဆေးများပေးလဲ? ဘာအတွက်လဲ?
- ဆေးရုံဆေးခန်းကို ဘယ်လိုအခြေအနေတွေမှာလွှဲပို့လဲ?/ ဘယ်လို လွှဲပို့သလဲ?

၂။ ကလေးမွေးစဉ် နှင့် မီးတွင်း သွေးသွန်ခြင်းဆိုင်ရာ သဘောထားခံယူချက်များ နှင့် ရှေးထုံးဆိုင်ရာ အယူစွဲများ

ကလေးမွေးတာနဲ့ပတ်သက်တဲ့ သင့်ရဲ့ အမြင်လေးကိုပြောပြနိုင်မလား?

- နောက်ဆက်တွဲ ပြဿနာများ အဖြစ်များပါသလား?
- အမျိုးသမီးများသည် ကလေးမွေးစဉ် အကူအညီလိုပါသလား?/ သင်ဘယ်လို ကူညီသလဲ။
- ကလေးမွေးပြီးပြီးချင်း အချိန်တွင် ဘာတွေလုပ်ပေးရလေ့ရှိသလဲ။

ကလေးမွေးပြီး မီးတွင်းမှာ သွေးသွန်တာနဲ့ပတ်သက်တဲ့ အကြောင်းအရာများ ပြောပြနိုင်မလား?

- ကလေးမွေးပြီးလျှင် သွေးသွန်ပါသလား?
- အဲဒါပြဿနာရှိလား/အန္တရာယ်ရှိလား?
- ရိုးရိုးသွေးထွက်တာနဲ့ အန္တရာယ်ရှိတဲ့ သွေးသွန်ခြင်း ဘာကွာသလဲ။
- သွေးထွက်လွန်ခြင်း ကာကွယ်ရန် သင်လုပ်ပေးနိုင်တာများရှိလား?
- သွေးထွက်လွန်နေပြီဆိုတာ သင်ဘယ်လိုသိနိုင်မလဲ? သွေးဆုံးရှုံးမှုကို ဘယ်လိုတိုင်းတာမလဲ?/သင်ဘာလုပ်မလဲ?
- အကူအညီတောင်းမလား? ဘယ်လိုတောင်းမလဲ? ဘယ်ကတောင်းမလဲ?
- သွေးထွက်လွန်တာကာကွယ်ရန် ဆေးများရှိသည်ဆိုတာ သိပါသလား? ဘယ်ဆေးလဲ?

၃။ မီးတွင်းမှာ သွေးသွန်ခြင်းကာကွယ်ရန် သားအိမ်ကျို့ဆေးအား ရှုဆေးအသွင်ဖြင့်ပေးခြင်းအပေါ် သဘောထားခံယူချက်များ

အသက်ရှူလမ်းကြောင်းမှ ရှူသွင်းရသော ဆေးများအပေါ်ဘယ်လိုထင်လဲ ပြောပြပါလား?

- ရှူဆေးများကို ဘယ်လိုရောဂါများအတွက် အသုံးပြုလေ့ရှိပါသလဲ။ ဘာဆေးတွေလဲ? ဘာကိုကုဖို့အတွက်လဲ?
- ရှူဆေးများကို အရင်က အခြားသူ တစ်ဦးဦး သုံးစွဲရန် ကူညီပေးဘူးပါသလား? ဘယ်ဆေးဘူးသုံးပါသလဲ?
- ရှူဆေးက ထိုးဆေး/သောက်ဆေးတွေလို အကျိုးရှိမယ်ထင်သလား။ ဘာကြောင့်လဲ။
- ကလေးမီးဖွားပြီး မီးတွင်းတွင် သွေးလွန်ခြင်းကို ကာကွယ်ရန် အသက်ရှူလမ်းကြောင်းမှ ရှူသွင်းရသောဆေးကိုသင့်လူနာအတွက်သုံးမလား? ဘာကြောင့်သုံးမလဲ /ဘာကြောင့်မသုံးဘူးလဲ?
- ဒီဆေးသုံးစွဲချင်စိတ်ကို တိုးတက်စေ (သို့မဟုတ်)ဟန့်တားစေမလား?

ဒီနေရာတွင် **အောက်ဆီတိုစင် ရှူသွင်းမှုသဘောကို ရှင်းပြပြီး ကိရိယာကိုလည်း ပြသပါမည် **

- ကလေးမွေးပြီးပြီးချင်း တစ်စုံတစ်ခုကိုရှူသွင်းနိုင်မယ်လို့ သင့်ထင်ပါသလား?
- အကယ်၍ ရှူဆေးကို သုံးရမယ်ဆိုရင် ဘာတွေလိုမယ်ထင်လဲ။ (ဆေးပစ္စည်းကိရိယာ/ အသုံးပြုပုံသင်တန်း)

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျုံ့ဆေးအား ရှူဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
တစ်ဦးချင်းဆွေးနွေးခြင်းလမ်းညွှန် (ဆေးရုံ၊ ဆေးခန်းမှ သူနာပြုများ / သားဖွားဆရာမများ)

၁။ကလေးမွေးဖွားခြင်းနှင့်ပတ်သက်သည့် လက်ရှိအလေ့အထ

မီးဖွားခြင်းနှင့် မီးတွင်းကာလများမှာ ဒီဆေးရုံ၊ ဆေးခန်းက ဘယ်လိုဆောင်ရွက်ပေးလဲ ပြောပြလို့ရမလား?

- ကလေးဘယ်သူမွေးပေးလဲ?
- သင်၏ တာဝန်ဝတ္တရားများကဘာလဲ?
- ပုံမှန်ကလေးမွေးဖွားခြင်းကို ဘယ်လိုဆောင်ရွက်ပါသလဲ?
- မီးတွင်းမှာ သွေးသွန်ခြင်းကာကွယ်ရန် ဆောင်ရွက်ထားတာများ ရှိပါသလား? ဘာတွေလဲ? ဘယ်သူက လုပ်ဆောင်ပေးပါသလဲ?
- သားအိမ်ကျုံ့ဆေးပေးပါသလား? ဘာဆေးလဲ? ဘယ်လို၊ ဘယ်အချိန်မှာ သုံးပါသလဲ/ ဆေးပမာဏ နှင့် ဆေးပေးသောအချိန်အပိုင်းအခြား/ ဘယ်အရာတွေနဲ့ ဆုံးဖြတ်ပါသလဲ။
- အထက်အဆင့် ဆေးရုံ၊ဆေးခန်းသို့ ဘယ်တော့လွှဲပို့လဲ? ဘာကြောင့် လွှဲပို့သလဲ?

၂။ လက်ရှိအောက်ဆီတိုစင်ဆေး အသုံးပြုမှု

ဒီဆေးရုံ၊ဆေးခန်းတွင် အောက်ဆီတိုစင်ဆေးကို အသုံးပြုခြင်းနဲ့ ပတ်သက်လို့ ပြောပြနိုင်မလား ?

- ထိုဆေးကို ကလေးမွေးဖွားရန် အထောက်အကူပြုခြင်း/မီးတွင်းသွေးသွန်မှုကာကွယ်ခြင်း/မီးတွင်းသွေးသွန်မှုကုသခြင်း တွင် သုံးပါသလား?
- ထိုဆေးသည် မီးတွင်းသွေးသွန်မှုကာကွယ်ခြင်းအတွက် အမြဲ အကျိုးရှိပါသလား? အခြား သားအိမ်ကျုံ့ဆေးများကို အတူ သုံးစွဲရန်လိုအပ်ပါသလား/ အစားထိုးသုံးစွဲရန်လိုအပ်ပါသလား
- ထိုဆေးသည် လက်တွေ့သုံးရန် အဆင်ပြေပါသလား? သုံးစွဲရာတွင် ပြဿနာ/အခက်အခဲ တစ်စုံတစ်ရာ ရှိပါသလား?
- အောက်ဆီတိုစင်ဆေးကို ပိုပြီးလွယ်ကူ လက်တွေ့ကျကျ သုံးရန် ဘယ်လိုဆောင်ရွက်နိုင်ပါသလဲ?

၃။ လက်ရှိအောက်ဆီတိုစင်ဆေးသိမ်းဆည်းခြင်း

ဒီဆေးရုံ၊ဆေးခန်းတွင် အောက်ဆီတိုစင်ဆေးကို သိမ်းဆည်းခြင်းနဲ့ ပတ်သက်လို့ ပြောပြနိုင်မလား ?

- လက်ရှိရနေသော ဆေးဘယ်ကရပါသလဲ?
- ဘယ်မှာ သိမ်းပါသလဲ?/ ရေခဲသေတ္တာထဲမှာ မသိမ်းလျှင်၊ ဘာကြောင့်မသိမ်းပါသလဲ?
- သိမ်းဆည်းမှုနှင့် ပတ်သက်ပြီး အခက်အခဲများ ရှိပါသလား?
- အောက်ဆီတိုစင်သိမ်းဆည်းမှုကို ပိုမိုလွယ်ကူပြီး လက်တွေ့ပိုကျစေရန် သင်ဘယ်လိုဆောင်ရွက်လိုပါသလဲ?
- ကလေးမွေးဖွားရာတွင် အသုံးပြုသော အခြားဆေးများကို ဘယ်လို၊ ဘယ်နေရာမှာ သိမ်းဆည်းပါသလဲ?
- တကယ်လို့ သင့်မှာ ရေခဲသေတ္တာထဲထည့်ရန် မလိုသော အောက်ဆီတိုစင် ရှိခဲ့မယ်ဆိုရင်
- ထိုဆေးသည် ကောင်းကျိုး (သို့မဟုတ်) ဆိုးကျိုးဖြစ်နိုင်ပါသလား (သို့မဟုတ်) ၂ခုလုံး မဖြစ်နိုင်ဘူးလား? ဘာကြောင့်လဲ?

၄။ မီးတွင်းမှာ သွေးသွန်ခြင်းကာကွယ်ရန် သားအိမ်ကျုံ့ဆေးအား (အောက်ဆီတိုစင်) ရှူဆေးအသွင်ဖြင့်ပေးခြင်းအပေါ် သဘောထား ခံယူချက်များ

အသက်ရှူလမ်းကြောင်းမှ ရှူသွင်းရသော ဆေးများအပေါ် ဘယ်လိုထင်လဲ ပြောပြပါလား?

- ထိုဆေးများကို ဒီဆေးခန်း၊ ဆေးရုံတွင် သုံးပါသလား? သုံးလျှင် ဘာအတွက်သုံးပါသလဲ?
- ထိုဆေးများသည် အခြား ထိုးဆေးများကဲ့သို့ အကျိုးရှိပါသလား? ဘာကြောင့် အကျိုးရှိပါသလဲ/ ဘာကြောင့် အကျိုးမရှိပါသလဲ?

**ဒီနေရာတွင် အောက်ဆီတိုစင် ရှူသွင်းမှုသဘောကို ရှင်းပြပြီး ကိရိယာကိုလည်း ပြသပါမည် **

ကလေးမီးဖွားပြီး မီးတွင်းတွင် သွေးလွန်ခြင်းကို ကာကွယ်ရန် အသက်ရှူလမ်းကြောင်းမှ ရှူသွင်းရသော အောက်ဆီတိုစင် ဆေးအပေါ် ဘယ်လိုထင်လဲ ပြောပြပါလား?

- ထိုးဆေးအစား အောက်ဆီတိုစင် ရှူသွင်းဆေးကို ကလေးမွေးပြီးလျှင် ပေးပါက အသုံးဝင်မယ်လို့ ထင်ပါသလား? ပိုခက်ခဲပါသလား/လွယ်ကူမယ်ထင်လား။ ဘာကြောင့်လဲ?
- အခြား သားအိမ်ကျုံ့ဆေးများ(အောက်ဆီတိုစင် ထိုးဆေးအပါအဝင်) နှင့် ယှဉ်ပါက အောက်ဆီတိုစင် ရှူသွင်းဆေး၏ ကောင်းကျိုးနှင့် ဆိုးကျိုးများကိုပြောပြပါ၊ အဆိုးဆုံးဆိုးကျိုးက ဘာဖြစ်မယ်ထင်လဲ? အကောင်းဆုံးကောင်းကျိုးက ဘာလဲ?
- အောက်ဆီတိုစင် ရှူသွင်းဆေးကို ရနိုင်ပါက သုံးပါမည်လား?
- ဒီဆေးသုံးစွဲရန် ဘာတွေလိုမယ်ထင်လဲ။

၅။ ဆေးရုံ ဆေးခန်းမရှိသောနေရာများတွင် သားအိမ်ကျုံ့ဆေးအား (အောက်ဆီတိုစင်) ရှုဆေးအသွင်ဖြင့်ပေးခြင်းအပေါ် သဘောထား ခံယူချက်များ

အောက်ဆီတိုစင် ရှုသွင်းဆေးကို ဆေးရုံ ဆေးခန်းပြင်ပတွင် မိသားစုဝင်များ၊ အရပ်လက်သည်များ၊ အမျိုးသမီးများကိုယ်တိုင် သုံးစွဲခြင်း အပေါ် ဘယ်လိုထင်လဲ ပြောပြပါလား?

- ဒီဆေးကို အိမ်တွင်ကလေးမီးဖွားခြင်းများတွင် သုံးရန်သင့်တော်ပါသလား?
- ဒီဆေးကို ဘယ်သူကပေးသင့်ပါသလဲ (အမေ/မိသားစုဝင်/အရပ်လက်သည်)?
- ကိရိယာကို သေချာစွာ အသုံးပြုပါမလား?
- ဆေးကို အချိန်မှန်သုံးပါမည်လား?
- ဆေးပစ္စည်းကိရိယာသုံးစွဲပုံနှင့် သင်တန်းကို ဘယ်လိုပေးသင့်ပါသလဲ?

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျုံ့ဆေးအား ရှုဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
တစ်ဦးချင်းဆွေးနွေးခြင်းလမ်းညွှန် (သားဖွားနှင့် မီးယပ်အထူးကုဆရာဝန်)

၁။ နောက်ခံ သတင်းအချက်အလက်

- သားဖွားမီးယပ် ပညာဘွဲ့လွန် ရရှိသောနှစ်/တက္ကသိုလ် ----------
- သင်တန်းကာလ ----------

သားဖွားမီးယပ်အထူးကုအဖြစ်ဆောင်ရွက်သည့် လုပ်ငန်းအတွေ့အကြုံ

- သားဖွားမီးယပ်အထူးကုအဖြစ် တာဝန်ထမ်းဆောင်ခဲ့သည့်နှစ်ပေါင်း ----------
- လက်ရှိရာထူးတွင် တာဝန်ထမ်းဆောင်ခဲ့သည့်နှစ်ပေါင်း ----------
- တစ်လပျမ်းမျှ ကလေးမွေးဖွားမှုအရေအတွက် ----------

၂။ ကလေးမွေးဖွားခြင်းဆိုင်ရာ လက်ရှိလုပ်ထုံးလုပ်နည်းများ

သင်တာဝန် ထမ်းဆောင်လျက်ရှိသော အလုပ်ခွင်တွင် ဆောင်ရွက်ပေးလျက်ရှိသည့် ကလေးမွေးဖွားမှုနှင့် မွေးဖွားပြီးစောင့်ရှောက်မှု အကြောင်း ပြောပြပေးပါ။

- မီးဖွားပြီးသွေးသွန် ခြင်းကိုကာကွယ်ဖို့ လုပ်ဆောင်ခြင်းရှိပါသလား? (ဘယ်လို ဆောင်ရွက်ပါသလဲ။ ဘယ်သူက ဆောင်ရွက်ပါသလဲ)
- သားအိမ်ကျုံ့ ဆေး ပေးပါသလား ?မည်သည့်သားအိမ်ကျုံ့ ဆေးပေးပါသလဲ? ဘယ်လိုပေးပါသလဲ။ ဘယ်အချိန်မှာပေးလဲ။
- မည်သည့်အချက်ပေါ်မူတည် ပြီး သားအိမ်ကျုံ့ ဆေးရွေးချယ်ပါသလဲ?
- မည်သို့သောမိခင်ကို အခြား ဆေးရုံဆေးခန်းသို့ လွှဲ ပို့ ပါသလဲ? ဘာကြောင့်လွှဲပို့ ပါသလဲ?

၃။ လက်ရှိအောက်ဆီတိုစင်ဆေးအသုံးပြုမှု

ယခု အလုပ်လုပ်လျက်ရှိသော ဆေးရုံဆေးခန်းမှာ အောက်ဆီတိုစင်အသုံးပြုမှု ကိုပြောပြပေးပါ။

- အောက်ဆီတိုစင်ကို ကလေးမွေးဖွားမှုတွင်ဘာကြောင့်အသုံးပြုပါသလဲ? ကလေးမွေးဖွားမှု လွယ်ကူလျင်မြန်စေရန်၊ မီးဖွားပြီးသွေးသွန်မှု ကာကွယ်ရန်၊ မီးဖွားပြီးသွေး သွန်မှု ကုသရန်)
- မီးဖွားပြီးသွေးသွန်မှုကာကွယ်ရန် အသုံးပြုရာတွင် အစွမ်းထက်မှု ရှိပါသလား? အခြား သားအိမ် ကျုံ့ ဆေး ထပ် အသုံးပြုရန် (သို့မဟုတ်)အစားထိုးအသုံးပြုရန် လိုအပ်ပါသလား?
- အသုံးပြုရာတွင် လက်တွေ့ အသုံးဝင်ပါသလား? အခက်အခဲ များ ၊ ပြဿနာများ ကြုံ တွေ့ ရပါသလား?
- အောက်ဆီတိုစင်ကို အသုံးပြု မှုပိုမိုလွယ်ကူစေရန် လက်တွေ့ အသုံးပြုမှု ပိုမိုအဆင်ပြေစေရန် မည်သို့ လုပ်ဆောင် နိုင်ပါသလဲ?

၄။ လက်ရှိအောက်ဆီတိုစင်ဆေး သိမ်းဆည်းခြင်း

သင် အလုပ်လုပ်သော ဆေးရုံဆေးခန်း မှာ အောက်ဆီတိုစင် (သားအိမ်ကျုံ့ ထိုးဆေး) သိမ်းဆည်း ထားရှိ မှု ကို ပြောပြပေးပါ။

- လက်ရှိအသုံး ပြု နေသောဆေးကို မည် သည့် နေရာမှရ ရှိပါသလဲ ?/မည်သည့်နေရာတွင် သိမ်းဆည်းထားရှိပါသလဲ?
- ရေခဲသေတ္တာ ထဲမှာ မထားရှိပါက ၊ ဘာကြောင့်မထားသလဲမေးပါ။
- အောက်ဆီတိုစင် သိမ်းဆည်း ထားရှိရာမှာအခက်အခဲများရှိပါသလား?
- အောက်ဆီတိုစင် သိမ်းဆည်းထားရှိမှု ပိုမိုလွယ်ကူစေရန်/လက်တွေ့ လုပ်ဆောင်ရာတွင်အဆင်ပြေစေရန် မည်သို့ လုပ်ဆောင် သင့်သလဲ?
- ကလေးမွေးဖွားမှု မှာ အသုံးပြုသော တခြားဆေးဝါးများ ကိုမည့် သည့်နေရာတွင် မည်သို့ သိမ်းဆည်းထားပါသလဲ?
- သင့်မှာ ရေခဲသေတ္တာထဲတွင်ထားရန် မလိုသည့် အောက်ဆီတိုစင်ဆေးရှိပါက အကျိုး ပိုရှိသွားမည်/ ဆိုးကျိုးဖြစ်ပေါ်စေမည်/မည်သို့ မှ မပြောင်းလဲပါ။ ဘာကြောင့်ပါသလဲ?

၅။ မီးတွင်းမှာ သွေးသွန်ခြင်းကာကွယ်ရန် သားအိမ်ကျုံ့ဆေးအား(အောက်ဆီတိုစင်) ရှူဆေးအသွင်ဖြင့်ပေးခြင်းအပေါ် သဘောထားခံယူချက်များ

**ဒီနေရာတွင် အောက်ဆီတိုစင် ရှူသွင်းမှုသဘောကို ရှင်းပြပြီး ကိရိယာကိုလည်း ပြသပါမည် **

အောက်ဆီတိုစင်ရှူဆေးကို မီးဖွားပြီးသွေးသွန် မှုကာကွယ်ရန် အသုံးပြုရန် ထင်မြင်ချက်အားပြောပြပေးပါ။

- အောက်ဆီတိုစင်အား ထိုးဆေးအစား ရှူစက် ဖြင့်ပေး ခြင်း ကို လက်တွေ့ အသုံးဝင် မည် ထင်ပါသလား၊ ပို မိုခက် ခဲမည်/သိပ် မခက်ခဲ ဟုထင်ပါသလား၊ ဘာကြောင့်ပါသလဲ?
- အခြား သားအိမ်ကျုံ့ ဆေးများနှင့် ယှဉ်ပါက အောက်ဆီတိုစင် ရှူဆေးတွင် မည်သည့် ကောင်းကျိုးနှင့်ဆိုးကျိုးများရှိနိုင်ပါသလဲ?
- အောက်ဆီတိုစင် ရှူဆေးကိုရရှိပါက အသုံးပြု ပါမလား?
- မည်သည့် အချက်က အသုံးပြု ဖို့ အားပေး ပါသလဲ (သို့ မဟုတ်) ဟန့် တားပါသလဲ?

၆။ ဆေးရုံ ဆေးခန်းပြင်ပ အောက်ဆီတိုဆင်ရှူသွင်းမှုအပေါ် သဘောထားခံယူချက်များ

- ဆေးရုံဆေးခန်းပြင်ပတွင်(မိသားစု ဝင်များ၊ လက်သည်များ သို့မဟုတ် မီးဖွားသူအမျိုးသမီးကိုယ်တိုင်) အောက်ဆီတိုစင် ရှူဆေးကို အသုံးပြု မှုအပေါ် သင့်အမြင် ကိုပြောပြပေးပါ။
- အိမ်မှာ ကလေးမီးဖွားမှုအတွက် အသုံးဝင် မည်ထင်ပါသလား?
- မည်သူက ရှူဆေးကိုပေး သင့်ပါသလဲ?(မိခင်၊ မိသားစုဝင်၊ လက်သည်)၊
- ရှူဆေးစက် ကိုသေချာစွာ အသုံးပြု မည် ထင်ပါသလား?
- သင့်တော်သောအချိန် တွင် အသုံးပြုမည် ထင်ပါသလား?/အသုံးပြုရန် သင်တန်းကို ဘယ်လိုပေးသင့်ပါသလဲ?

မိခင်များ မီးတွင်းသွေးသွန်မှုအား ကာကွယ်ရန် စိတ်ချရသော သားအိမ်ကျုံ့ဆေးအား ရှူဆေးအဖြစ် အသုံးပြုခြင်းအပေါ်
သဘောထားအမြင် ဆန်းစစ်မှုသုတေသန
တစ်ဦးချင်းဆွေးနွေးခြင်းလမ်းညွှန်
(ဆေးရုံအုပ်ချုပ်သူများ/ အစိုးရ ဌာနဆိုင်ရာ တာဝန်ရှိသူများနှင့် အရပ်ဘက်ဆိုင်ရာ အဖွဲ့အစည်းများမှ အဖွဲ့ဝင်များ)

၁။ လက်ရှိ ရာထူးနှင့်ပတ်သက်သော အသေးစိတ်အချက်အလက်များကို ပြောပြပါ။

- ရာထူးအမည် ----------
- အဖွဲ့အစည်းအမည် ----------
- ဌာန ----------
- တာဝန်နှင့်ဝတ္တရားများ အနှစ်ချုပ် ----------
- ရာထူးထမ်းဆောင်သော ကာလ ----------

၂။ လက်ရှိ အောက်ဆီတိုစင် ဆေးအသုံးပြုမှု

အောက်ဆီတိုစင် ဆေးနဲ့ပတ်သက်ပြီး သင်သိသလောက် ဆွေးနွေးပေးပါ။
အောက်ဆီတိုစင် ဆေး လက်ရှိ ဘယ်လိုအသုံးပြုနေပါသလဲ။

- သင် အလုပ်လုပ်သော ဆေးရုံဆေးခန်း မှာ အောက်ဆီတိုစင် (သားအိမ်ကျုံ့ ထိုးဆေး)သိမ်းဆည်း ထားရှိ မှုကို ပြောပြပေးပါ။/ မည်သို့ /မည်သည့်နေရာတွင် သိမ်းဆည်းထားရှိပါသလဲ?
- အောက်ဆီတိုစင် သိမ်းဆည်း ထားရှိရာမှာတွေ့ ရသည့်အခက်အခဲများရှိပါသလား?
- ရေခဲသေတ္တာ ထဲမှာ မထားရှိပါက ၊ ဘာကြောင့်မထားသလဲမေးပါ။
- အောက်ဆီတိုစင် သိမ်းဆည်းထားရှိမှု ပိုမိုလွယ်ကူစေရန်/လက်တွေ့ လုပ်ဆောင်ရာတွင် အဆင်ပြေစေရန် မည်သို့ လုပ်ဆောင်သင့်သလဲ?
- ဆေးပြတ်လပ်သွားခြင်းများ ရှိပါသလား။
- အကယ် ၍ ရေခဲသေတ္တာထဲတွင် သိမ်းဆည်းစရာမလိုသောအောက်ဆီတိုဆင် ရှိပါက ကောင်းကျိုး ရှိနိုင်မည်။ ဆိုးကျိုး ဖြစ်နိုင်မည် ။ မထူးခြားပါ ဟုထင်ပါသလား။ အဘယ်ကြောင့်နည်း?

၃။ မီးတွင်းမှာ သွေးသွန်ခြင်းကာကွယ်ရန် သားအိမ်ကျုံ့ဆေးအား ရှူဆေးအသွင်ဖြင့်ပေးခြင်းအပေါ် သဘောထားခံယူချက်များ

**ဒီနေရာတွင် အောက်ဆီတိုစင် ရှူသွင်းမှုသဘောကို ရှင်းပြပြီး ကိရိယာကိုလည်း ပြသပါမည် **
ကျန်းမာရေးဌာနတွင် ကလေးမွေးဖွားပြီး မီးတွင်းတွင် သွေးလွန်ခြင်းကို ကာကွယ်ရန် အသက်ရှူလမ်းကြောင်းမှ ရှူသွင်းရသော အောက်ဆီတိုစင် ဆေးအပေါ်ဘယ်လိုထင်လဲ ပြောပြပါလား?

- အောက်ဆီတိုစင်အား အခြားလမ်းကြောင်း (ထိုးဆေး ၊သောက်ဆေး)အစား ရှူစက် ဖြင့်ပေး ခြင်းသည် မည်သို့ကွာခြားမည် ထင်ပါသလဲ?
- အောက်ဆီတိုစင် ရှူဆေး ကို လက်တွေ့ ပိုမိုအသုံးဝင်မည်ဟုထင်ပါသလား၊ ဆိုးကျိုးရှိနိုင်မည် ထင်ပါသလား?
- အရေးကြီးဆုံး အသုံးဝင်မှုတန်ဖိုးက ဘာဖြစ်နိုင်မည်ထင်ပါသလဲ?
- မည်သည့် အချက်က အသုံးပြု ဖို့ အားပေး ပါသလဲ (သို့ မဟုတ်) ဟန့် တားပါသလဲ?
- ဆေးရုံဆေးခန်း ပြင်ပ မှာ အောက်ဆီတိုစင် ရှူဆေးအသုံးပြုသင့်/ မသင့် အမြင်
အိမ်မှာဆိုရင်ကော အသုံးဝင် မည်ထင်ပါသလား?ဘာကြောင့်လဲ

၄။ ဆေးရုံ ဆေးခန်းမရှိသောနေရာများတွင် အောက်ဆီတိုစင် ရှူသွင်းမှုအပေါ် သဘောထားခံယူချက်များ

မီးဖွားပြီးသွေး သွန်မှု ကာကွယ်ရန် ရှူဆေးကို ဆေးရုံဆေးခန်းမရှိသောနေရာများတွင် အသုံးပြု မှု အပေါ် သင့်အမြင်ကိုပြောပြပေးပါ။

- အိမ် တွင် ကလေးမီးဖွားမှုများအတွက် သင့်တော်မည်ထင်ပါသလား?
- သင့်တော်ပါက မည်သူက ရှူဆေးကိုမီးဖွားသည့်အမျိုးသမီးကိုပေးသင့်ပါသလဲ?
- ဆေးပစ္စည်းကိရိယာ /အသုံးပြု ပုံသင်တန်းအားမည်သို့ ပေးသင့်ပါသလဲ?

The Government of the Republic of the Union of Myanmar
Ministry of Health
Department of Medical Research
No. 5, Ziwaka Road, Dagon Township, Yangon 11191
Tel : 95-1-375447, 95-1-375457, 95-1-375459 Fax : 95-1-251514

Letter No. 42/ Ethics 2015
Dated: 2.6.2015

The Ethics Review Committee on Medical Research Involving Human Subjects, Department of Medical Research, approves to conduct the following proposed research project.

The role of Auxiliary Midwives in community-based maternal and child health care in Myanmar: an assessment of the feasibility of task shifting

Principal Investigator: Dr. Kyu Kyu Than

2.6.15

Dr. Myint Htwe
Chairperson
Ethics Review Committee
Department of Medical Research

(*** Approval of the research is for the period of one year from the date mentioned)

TheAlfred

ETHICS COMMITTEE CERTIFICATE OF APPROVAL

This is to certify that

Project No: 150/15

Project Title: The role of Auxiliary Midwives in community-based maternal and child health care in Myanmar: an assessment of the feasibility of task shifting

Principal Researchers: Dr Kyu Kyu Than & A/Professor Stanley Luchters

Protocol Version 3 **dated:** 22-Apr-2015

Participant Information and Consent Form (Community member) Version 2 **dated:** 22-Apr-2015
Participant Information and Consent Form (Mother) Version 2 **dated:** 22-Apr-2015
Participant Information and Consent Form (Traditional birth attendant) Version 2 **dated:** 22-Apr-2015
Participant Information and Consent Form (Midwife) Version 2 **dated:** 22-Apr-2015
Participant Information and Consent Form (Policy maker) Version 2 **dated:** 22-Apr-2015
Participant Information and Consent Form (Midwife - Questionnaire) Version 2 **dated:** 22-Apr-2015

*was considered by the Ethics Committee on **30-Apr-2015**, meets the requirements of the National Statement on Ethical Conduct in Human Research (2007) and was **APPROVED** on **5-May-2015***

It is the Principal Researcher's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Secretary of the Ethics Committee, via amendment or progress report, of

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any);
- Serious adverse effects on participants and the action taken to address those effects;
- Any other unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role, or any other change in research personnel involved in the project;
- Any expiry of the insurance coverage provided with respect to sponsored clinical trials and proof of re-insurance;
- A delay of more than 12 months in the commencement of the project; and,
- Termination or closure of the project.

Additionally, the Principal Researcher is required to submit

- A Progress Report on the anniversary of approval and on completion of the project *(forms to be provided)*;

The Ethics Committee may conduct an audit at any time.

All research subject to the Alfred Hospital Ethics Committee review must be conducted in accordance with the National Statement on Ethical Conduct in Human Research (2007).

The Alfred Hospital Ethics Committee is a properly constituted Human Research Ethics Committee in accordance with the National Statement on Ethical Conduct in Human Research (2007).

SPECIAL CONDITIONS

None

SIGNED:

Professor John J. McNeil
Chair, Ethics Committee

Please quote project number and title in all correspondence

The Government of the Republic of the Union of Myanmar
Ministry of Health
Department of Medical Research
No. 5, Ziwaka Road, Dagon Township, Yangon 11191
Tel : 95-1-375447, 95-1-375457, 95-1-375459 Fax : 95-1-251514

Letter No. 48/ Ethics 2015
Dated: 2.7.2015

The Ethics Review Committee on Medical Research Involving Human Subjects, Department of Medical Research, approves to conduct the following proposed research project.

Perspectives of an inhaled uterotonic medication for the prevention of postpartum haemorrhage in low resource settings

Principal Investigator: Dr. Kyu Kyu Than

2.7.15

Dr. Myint Htwe
Chairperson
Ethics Review Committee
Department of Medical Research

(*** Approval of the research is for the period of one year from the date mentioned)

TheAlfred

ETHICS COMMITTEE CERTIFICATE OF APPROVAL

This is to certify that

Project No: 153/15

Project Title: Perspectives of an inhaled oxytocin intervention for the prevention of postpartum haemorrhage in resource-poor settings

Principal Researchers: Dr Kyu Kyu Than, Dr Victoria Oliver & A/Professor Stanley Luchters

Protocol Version dated: 30-Mar-2015
Participant Information & Consent Forms (x 14 – refer to list on p.2)

*was considered by the Ethics Committee on **30-Apr-2015**, meets the requirements of the National Statement on Ethical Conduct in Human Research (2007) and was APPROVED on **13-May-2015***

It is the Principal Researcher's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Secretary of the Ethics Committee, via amendment or progress report, of

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any);
- Serious adverse effects on participants and the action taken to address those effects;
- Any other unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role, or any other change in research personnel involved in the project;
- Any expiry of the insurance coverage provided with respect to sponsored clinical trials and proof of re-insurance;
- A delay of more than 12 months in the commencement of the project; and,
- Termination or closure of the project.

Additionally, the Principal Researcher is required to submit

- A Progress Report on the anniversary of approval and on completion of the project *(forms to be provided)*;

The Ethics Committee may conduct an audit at any time.

All research subject to the Alfred Hospital Ethics Committee review must be conducted in accordance with the National Statement on Ethical Conduct in Human Research (2007).

The Alfred Hospital Ethics Committee is a properly constituted Human Research Ethics Committee in accordance with the National Statement on Ethical Conduct in Human Research (2007).

SPECIAL CONDITIONS
Updated PICFs are to be provided to the Ethics Committee when details of locations and dates of focus groups and interviews are finalised.
Evidence of ethical approval from the Myanmar Department of Medical Research (Lower Myanmar) is to be forwarded to the Ethics Committee once obtained.

SIGNED:

Professor John J. McNeil
Chair, Ethics Committee

Please quote project number and title in all correspondence

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
ကျန်းမာရေးဝန်ကြီးဌာန
ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန

စာအမှတ်။ပကရ/ပက-မမက/အထွေထွေ/၂၀၁၅(၃၇၆)
ရက်စွဲ။ ၂၀၁၅ခုနှစ်၊ အောက်တိုဘာလ(၂၆)ရက်

သို့

မြို့နယ်ပြည်သူ့ကျန်းမာရေးဦးစီးဌာနမှူး
ဝန့်ဂေါမြို့နယ်ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန
မကွေးတိုင်းဒေသကြီး။

အကြောင်းအရာ။ ။သုတေသနကွင်းဆင်းဆောင်ရွက်မည့်ကိစ္စ။

ရည်ညွှန်းချက်။ ကျန်းမာရေးဝန်ကြီးဌာန၊ ဝန်ကြီးရုံး၏ (၁၈-၆-၂၀၁၅) ရက်စွဲပါစာအမှတ် နဆရ/အထွေထွေ/နလ(၂၀၁၅)/၁၁၁၄၃

အထက်အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ သြစတြေးလျနိုင်ငံ၊ မဲလ်ဘုန်းအခြေစိုက် Burnet Institute အဖွဲ့နှင့် အဓိကသုတေသီ ဒေါက်တာကြူကြူသန်း ဦးဆောင်၍ "The Role of Auxiliary Midwives in Community-based Maternal and Child Health Care in Myanmar: an Assessment of the Feasibility of Task Shifting" သုတေသနလုပ်ငန်းအား လူကြီးမင်း၏ မြို့နယ်တွင် ဆောင်ရွက်ရန် ကျန်းမာရေးဝန်ကြီးဌာနမှ ရည်ညွှန်းပါစာအရ ခွင့်ပြုပြီးဖြစ်ပါသဖြင့် လူကြီးမင်းမှလိုအပ်သည်များ ကူညီပံ့ပိုးပေးနိုင်ပါရန် အကြောင်းကြားအပ်ပါသည်။

(ဒေါက်တာသိဂီမြင့်)
ညွှန်ကြားရေးမှူး(မိခင်နှင့်မျိုးဆက်ပွားကျန်းမာရေး)

မိတ္တူကို /-

၁။ ဒုတိယညွှန်ကြားရေးမှူးချုပ်(ပြည်သူ့ကျန်းမာ)၊ ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန။
၂။ တိုင်းဒေသကြီးပြည်သူ့ကျန်းမာရေးဦးစီးဌာနမှူး၊ မကွေးတိုင်းဒေသကြီး။
၃။ ဒေါက်တာကြူကြူသန်း၊ Burnet Institute။
၄။ ရုံးလက်ခံ။
၅။ မှတ်စာတွဲ။

Office Letter/Desktop/Dr Myo Mya Mon